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ABSTRACT

This comprehensive teaching guide for an 18-36 week course in American industry for the junior high grades contains seven units with detailed lesson plans, which focus on establishing and running a student business. Developed by educational specialists, the unit plans provide teaching suggestions, instructional media, behavioral objectives, and class activities. Teacher feedback sheets, unit tests with answer keys, student worksheets, line drawings, and transparencies supplement the subject content and class discussion guidelines. The instructional materials will enable the student to acquire a broad understanding of American industrial organization. (AG)

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LEVEL ONE
AMERICAN INDUSTRY
INSTRUCTORS GUIDE
PART I

AMERICAN INDUSTRY PROJECT
STOUT STATE UNIVERSITY
MENOMONIE, WISCONSIN
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AMERICAN INDUSTRY
INSTRUCTOR'S GUIDE
LEVEL I

Produced By

THE AMERICAN INDUSTRY PROJECT
Stout State University
Menomonie, Wisconsin

1969

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R. Gebhart
11/1/67

LEVEL I - AMERICAN INDUSTRY
COURSE DESCRIPTION
FOR 18 OR 36 WEEK COURSES

Class Periods (18 Wk)	Class Periods (36 Wk)		Units and Features	Unit Theme
15	20	Unit I ✓	Industry Today 1. Introduction to American industry 2. Resources of industry 3. The environment of industry 4. The basic parts of industry	- Let's analyze industry.
2	10	Unit II	The Evolution of Industry ✓ 1. The needs of man 2. A search for greater productivity 3. Some effects of man's quest for productivity	- The needs of man and why he progressed.
20	40	Unit III	Organizing an Enterprise 1. Communication ✓ 2. Research 3. Management ✓ 4. Finance 5. Property ✓ 6. Energy ✓	- Let's start a business.
23	45	Unit IV ✓	Operating an Enterprise 1. Relationships ✓ 2. Procurement ✓ 3. Materials 4. Processes ✓ 5. Production ✓	- Let's produce using modern production methods.
8	15	Unit V	Distributing Products and Services 1. Marketing ✓ 2. Transportation ✓	- Why does a product sell?
2	10	Unit VI	The Future of Industry ✓ 1. State of the art 2. Reasons for change 3. Future expectations ✓	- Where do we go from here?
20	40	Unit VII	The Students' Business Venture 1. Development 2. Fabrication 3. Marketing 4. Evaluation	- The students organize, produce, and sell.

Stout State University
October, 1967

COURSE DESCRIPTION AND OBJECTIVES
LEVEL I
AMERICAN INDUSTRY

The first course in American Industry is designed for students in the junior high school. It deals with a study of the basic conceptual knowledges of industry and the solving of simple industrial problems.

Through a series of classroom and laboratory activities it is intended that the student will develop a broad understanding of industry and its role in society.

The areas identified as necessary to achieving an understanding of industry include: communication, transportation, finance, property, research, procurement, relationships, marketing, management, production, materials, processes, and energy. Those areas that externally affect industry will also be studied. They are: government, private property, resources, competition, and public interest. Units of study include: Unit I: Industry Today, Unit II: The Evolution of Industry, Unit III: Organizing an Enterprise, Unit IV: Operating an Enterprise, Unit V: Distributing Products and Services, Unit VI: The Future of Industry, and Unit VII: The Students' Business Venture.

Major emphasis is placed upon the structured concepts of industry with other aims of the course being:

1. To identify the broad relationships of the concept areas.
2. To expose the students to the excitement and challenge portrayed by industry.
3. To develop an understanding of the relationship between our society and industry.
4. To develop the students ability to solve simple industrial problems.

Because of the student's age, he is involved in considerable physical activity both in the laboratory and the classroom.

9/17/68

REVISED LESSON SEQUENCE

LEVEL I: UNITS I - VII

A. Unit I: Use revised sequence dated September, 1968.

B. Unit II: As given in guide.*

C. Units III, IV, V, and VII: Use the revised sequence described below.

D.

CONTENT:

Lessons in Units III - V*		
Unit III	Unit IV	Unit V

ACTIVITY:

Development: Lessons 1-5	Fabrication: Lessons 6-9	Marketing: Lessons 10-11	Evaluation Lessons 12-13
Student Enterprise - Unit VII Materials			

1. Start the student enterprise and use the need for a product to demonstrate a need for studying the research and communication lessons in Unit III. Then run the student enterprise as an activity parallel to the lessons in Units III, IV and V.

2. Use the objectives listed in the lessons used.

3. Use the student booklets as appropriate. Correlate them with the lessons and the activity.

4. Relationship between the content lessons (Units III-IV) and the activity lessons (Unit VII).

    a. Each phase, development, fabrication, marketing, and evaluation, of the student enterprise will require the application of knowledges and skills in all of our concept areas.

    b. The lessons in Unit III can be directly applied to the development phase of the student enterprise. For example, your study of the finance lessons can be applied to the cost analysis of the enterprise's product and your possible means of financing the student enterprise. Unit III and the development phase will be run concurrently. Those skills from Units IV and V which are needed in the development phase will have to be taught as needed. For instance, you will have instructed your students on how to run a market survey during this phase. However, do not present more than is required to complete this activity. Wait with the formal lessons in marketing until you reach Unit V.

*Those teaching a semester course will use the starred lessons.

c. Start Unit IV lessons just prior to the time you complete the development phase. Apply the Unit IV lessons directly to the latter part of the development phase and the fabrication phase of the student enterprise. The procurement lessons, for example, can be applied to purchasing the materials and tooling needed for the student enterprise. You will also find that the knowledges and skills learned in Unit III can be applied in the fabrication phase. In addition, you will have to teach some of the skills included in Unit V. As in the development phase, present only the information and techniques from Unit V that are needed for the enterprise.

d. Start Unit V lessons as you enter the marketing phase of the student enterprise. In this phase you will be able to use the information studied in the prior units. In fact, a conscious attempt should be made to apply these knowledges.

e. Teach the evaluation phase at the conclusion of the student enterprise. Evaluate your enterprise in relation to all of our concepts. For instance, what would happen to profits if a different material had been used, if productivity of the workers was improved, if a more efficient production system had been used, or if management had been better?

f. You should have approximately 60 class periods to cover this sequence--Units III, IV, V and the student enterprise in Unit VII. Some hints to compress this into this period are: (1) Use a product that is not too complex or difficult to produce, (2) provide enough direction to move the class along on schedule, and (3) assign some tasks, such as selling the products, outside of class time.

E. Unit VI: Use as given.*

OVERVIEW OF AN EIGHTEEN WEEK COURSE

I. Introduction

For those teaching an eighteen week course a tentative list of the unit content is given below. It is tentative in that you may find that you can finish some lessons ahead of schedule while others take longer. As you progress through the course, record your time and compare it with your scheduled completion dates.

The philosophy and rationale of American Industry require that you teach all of the conceptual areas. Hence, you cannot delete complete units or concept areas. The lessons have been written to aid your task of reducing your class time in a specific area. The first lesson in each area is the most important. Each successive lesson develops new skills and knowledges and is complete in itself. Thus, you can quit after any lesson. All lessons after Unit I were constructed in this manner. In Unit I, you will have to cover all four lessons. Unit I can be shortened by moving through the lessons faster and selecting a simpler product or service for your student enterprise. Also, remember that a reduced scope in one concept area requires a similar reduction in the other concept areas. These lessons not taught can be used for content or special knowledges and skills needed in later units.

II. Course Outline: 18 Weeks

Unit	Lessons	Content or Modification
I	1, 2, 3, & 4	Reduce the time for the student enterprise.
II	1	
III	1, 2, & 3	Communication.
	6 & 7	Research. Use Lesson 8 if you have time. Start your product development for Unit VII at this point. Can use individual or small group approach to the product design. If needed, teach Lessons 4 and 5 in communication here. Apply later concepts to the products being developed.
	10	Management.
	13 & 14	Finance. Try to shorten Lesson 14 to two days.
	16	Property.

Unit	Lessons	Content or Modification
	19 & 20	Energy. Reduce time in Lesson 20 by shortening the opening activity.

You may find yourself three to five days behind the time schedule listed in "Level I - American Industry Course Description." You should be able to make this up in the remaining units as they are scheduled. However, keep close account of your time.

IV	1	Relationships. Use remaining ideas as they arise in class situations.
	4 & 5	Procurement.
	8 & 9	Materials.
	12, 13, & 14	Processes.
	18, 19, 20, 21, 22, & 23	Production.
V	1, 2, & 3	Marketing. Do your market research for Unit VII here and decide which product or service to use.
	7 & 8	Transportation.
VI	1	Filmstrip. Use assignment in Lesson 2 for a homework assignment.
VII	1	Use 1 period of the 3.
	5	Use 2 periods of the 3.
	6	Use all periods.
	7	Use all periods.
	8	Use 5 periods of the 8.
	9	Use all periods.
	10	Use 1 period of the 2.
	11	Use all periods.
	12	Use all periods.
	13	Use all periods.

INSTRUCTIONAL MEDIA

The purpose of the instructional media guide is to facilitate ordering audio-visual materials early enough to increase possibilities of obtaining these materials at the times when they are needed.

Audio-visuals offered by the Project will be available at all times, and can be obtained on short notice. (Depending upon mail service.) In the case of films, alternate activities or audio-visuals have been included. However, where films are recommended, a sincere effort should be made to obtain them. In several instances these films will do a much more effective job of presenting the material.

Most films are listed in the American Industry Film Catalogs for each level. In some instances, films not listed in the catalog will be recommended. Titles and details will appear in the lesson plan, but do not appear in this guide. However, the concept area will appear. Remember, films are used to attain course objectives. If films come early or late and as a result are not appropriate, do not use your class time to show them.

Audio-visuals obtained from the Project will be accompanied by titles in this guide and are followed by the symbol "A.I."

Code indications for audio-visuals are as follows:

F - Film
FS - Film Strip
OT - Overhead Transparency
SS - Slide Series

SAMPLE VISUAL AID GUIDE
LEVEL I

Unit	Lesson	Activity	Visual	Title or Concept Area
I	1	2	F (Alternate)	"Introduction to Industry" (A.I. Production)
I	1	2	SS (Alternate)	"American Industry" (A.I.)
I	4	1	OT	"Industry" (A.I.)
II	1	2	SS (Audio Tape)	"Man to Machine" (A.I.)
III	3	1	F	"Research"
III	4	2	FS	"Safety" (A.I.)

LEVEL I - American Industry
UNIT I - Introduction to Industry
Introduction

Stout State University
October, 1967

I. General Objectives

This unit serves as an introduction to the first level of American Industry. By introducing the students to the concepts of American Industry it provides a knowledge base that can be referred to in subsequent lessons.

Below is a listing of the lesson themes for this unit.

A. Definitions, examples, and a brief study of the attributes of American industry are essential to basic understanding.

B. American industry uses human and natural resources in the production of goods and services.

C. American industry functions in a unique environment which is affected by government, public interest, competition, resources, and the right to private property.

D. In order to understand American industry we must know how it operates. Conceptually all enterprises which make up American industry operate the same and utilize the same knowledges.

II. Activities

A. The activities in these lessons may be referred to in other units. These references should help the student develop greater depth in solving the problems outlined in the activity. The student enterprise is an especially important part of the course. Subsequent lessons will take on additional meaning for the student because of the understandings brought out through the student enterprise.

B. Plans for the student enterprise activity should be made in the early part of this unit. The objective of the student enterprise is to introduce your students to the problems and tasks found in an enterprise. Also, this activity should present them with the opportunity to participate in a situation in which they can make or lose money depending on the success of the enterprise. Any good or service can be used as an activity as long as it meets the criteria noted above.

III. Evaluation

A test is provided for this unit, however, it should not be read by the teacher until the test is to be administered. This will help prevent teaching for the test and provide a legitimate evaluation of the upper levels of the cognitive taxonomy.

IV. Instructional Media

A. The instructional media package provided for Unit I by the American Industry Project includes the following:

OT: Human Resources (six in series).

B. Titles of selected films have been omitted from most lessons. You are directed to the film catalog, "Suggested Films for Teaching First Level American Industry." For Unit I please see introductory section of the film catalog.

V. Optional Method of Teaching Unit I (Option 1)

A. The student enterprise will be used as described in Unit I of the Instructor's Guide. However, the enterprise will run parallel with the lessons and concerted effort should be made to relate the content of the lessons to the enterprise and the events in the enterprise to the lessons.

B. The enterprise should have the following attributes:

1. Be teacher directed to assure an interesting and successful experience.
2. Contain all of the elements of an enterprise--from need through marketing and the financial evaluation of the enterprise.
3. The product or service should be simple to produce and teacher designed. Product drawings and specifications should be given to the students. It is recommended that the teacher have several products from which the students may select one for the enterprise.
4. The product must satisfy a need felt by the potential customers.

LEVEL I - American Industry
UNIT I - Introduction to Industry
Unit Layout

Stout State University
Summer, 1967

Lesson No.	Periods Required	Lesson Title
1	3	Defining American Industry
2	2	Resources of Industry
3	5	The Environment of Industry
4	9	The Basic Parts of Industry

NOTE: For the semester classes in American Industry, reduce the time for the student enterprise. This will allow ample time for teaching all other lessons.

Richard Gebhart
Orville Nelson
Stout State University
September, 1968

OPTIONAL SEQUENCE FOR THE LEVEL I AMERICAN INDUSTRY COURSE

LEVEL I - American Industry
UNIT I - Introduction to Industry
Introduction

I. General Objectives

The general objectives remain the same as for Unit I in the Level I Instructor's Guide.

II. Activities

A. The student enterprise will be used as described in Unit I of the Instructor's Guide. However, the enterprise will run parallel with the lessons and concerted effort should be made to relate the content of the lessons to the enterprise and the events in the enterprise to the lessons.

B. The enterprise should have the following attributes:

1. Be teacher directed to assure an interesting and successful experience.

2. Contain all of the elements of an enterprise--from need through marketing and the financial evaluation of the enterprise.

3. The product or service should be simple to produce and teacher designed. Product drawings and specifications should be given to the students. It is reccmmended that the teacher have several products from which the students may select one for the enterprise.

4. The product must satisfy a need felt by the potential customers.

III. Evaluation

Use the Unit I test given in the Instructor's Guide.

IV. Instructional Media

The instructional media remains the same. The sequence in which they are used will have to be changed to correspond to the new lesson sequence.

V. Revised Lesson Sequence

A. Teach the lessons given in Unit I of the Level I Instructor's Guide in the following sequence:

1. Lesson 1
2. Lesson 4
3. Lesson 2
4. Lesson 3

B. Lesson-activity interaction during Unit I.

1. Start the student enterprise the first day or two of class. When the students ask, "What are we going to make?" use this as the lead into the fact that they will make a product and sell it. Point out that they will be involved in the same activities as found in industry. This is your lead into Lesson 1. Cover this lesson before you go on to Lesson 4. Assign student booklet, Industry Today, to your students. Involve the content of this booklet in the ensuing lessons as appropriate.

2. The next step is to use Lesson 4 to plan, initiate, and operate your enterprise. The teacher should have several products the students can produce. The content of Lesson 4 can be structured directly around the ongoing student enterprise. Omit the summary for this lesson until the end of the unit.

3. When you come to the point in your enterprise that you have to select people for jobs use Lesson 2 to develop the concept of human resources. Then go on to the natural resources portion of this lesson. Relate natural resources to the materials used in the student enterprise and interrelate human and natural resources as done in the lesson.

4. Teach Lesson 3 last. Actually, you will have had to be concerned with the concepts covered in this lesson before you originate your student enterprise. For example, the school board policies on production and sales in your department have to be clarified before you start the course. However, you can still use this as an example of government policies and thier influence on industry. Competition can be discussed in relation to the marketing of the product the student enterprise is producing. Public interest can be approached through the detrimental and beneficial effects of the product. For example, selling candy at noon in your school might lead to a lot of litter and tooth decay along with the satisfied appetite.

5. Use the summary of Lesson 4 to summarize the unit.

6. Use approximately 15 class periods for Unit I.

LEVEL I - American Industry
UNIT I - Introduction to Industry
Lesson 1 - Defining American Industry (3 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Define American industry in his own words, the definition including these attributes: (1) an institution in our society; (2) applies knowledge: (3) utilizes human and natural resources; (4) produces goods or services; (5) meets the needs of man; (6) for a monetary profit.

II. Scope

This lesson provides the means for introducing American industry through the conceptual definition and its major attributes.

III. Resources

A. Instructional media

1. Introductory film, American Industry.

2. First level film catalog.

3. Sample products.

B. Student booklet, Industry Today, pages 31-32.

IV. Content Outline

A. Introduction

1. No matter what industries we select for study, there are many things that are similar in each.

2. Today we are going to (select one of the following): (1) view a film on American industry; (2) have a discussion on American industry.

Make this selection about a week prior to this lesson.

3. As we progress, try to pick out the major similarities involved (six attributes) in discussing these industries.

B. Activity and content

1. Introductory film (activity).

Film: "American Industry" (See Teacher's Guide for film)

a. This film will compare three industries: baking, newspaper, and automotive.

b. It will point out the major similarities in all industries.

c. See if you can determine what these major similarities are.

2. American industry lecture.

a. Preparation required by the teacher.

(1) (Gather any five products--electric shaver, wrench, fry pan, etc.)

(2) (Review production aspects of each product.)

b. Group activity using an identified item for each.

(1) Why do we have the item?
(2) How did it come to be?
(3) How was it made?
(4) How many parts?
(5) How was it made?
(6) What is the product worth? Is it worth more or less than paid?

(Select a diverse group of products and processes with many materials and multiple parts. This should provide insight for the teacher concerning students background.)

NOTE: The following is an outline of points to be emphasized in a discussion. The points will not necessarily occur in this order, nor will the terminology used by the student necessarily be the same. Remember, we are after the understandings entailed in the content rather than a "canned" presentation of the American industry definition. The points of discussion should be correlated to the beginning activity (film or lecture). They have been arranged here in the order that they will most likely be drawn from the students.

3. Discussion.

(Open discussion by identifying the basic needs for producing a product--something like human and natural resources.)

a. Human and natural resources.

Discuss human and natural resources.

(1) What materials were gathered to produce the products mentioned in the (film or lecture)?

Answer: Varies with activity content.

(2) How many materials can each identify within the lab area within the next 10 minutes? (Use a competitive A-for-the-day contest.)

(3) By grouping all of these materials together, can we identify one term that can be used to classify these materials?

Answer: These could be raw materials, synthetics, materials, processed, etc. (The main point is "get the students to classify things.")

(4) Now let's consider how these natural resources were gathered. Who was responsible for gathering them?

Answer: Individuals, groups, companies, etc.

(5) Can we categorize all of the men who gathered these natural resources? What term should we use to identify them and their duties?

Answer: Human resources.

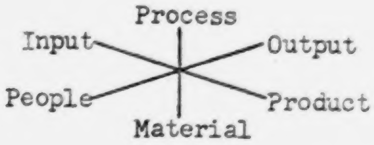
(6) Is the gathering of natural resources the only place where we utilize human resources? Where else in industry are human resources used?

Answer: In the factory, in the office, salesmen, etc.

b. Produces goods and services.

(1) What was done with the human and natural resources?

Discuss the use of resources to produce goods and services.



(2) Name some other products made from the materials mentioned earlier.

(10 minute A-for-the-day contest.)

(3) If we combine all of these items into one category, what term could we use to describe them?

Answer: Goods--could be products.

Bring out goods.

(4) Let's assume that we have just purchased one of these goods. It is a television set. It took both human and natural resources to produce this piece of goods. After using it for awhile, something goes wrong and it stops working. It is logical to assume that it will take additional human resources to repair the set; possibly even additional natural resources. Assuming that you know nothing about repairing a television set, who would you get to fix it?

Answer: Television repair man. (Instead of introducing the service of t.v. set, use one of the products (servicing of) discussed earlier in this lesson.)

(5) What are some other items that we might be repairing?

Answer: Cars, appliances, machines, etc.

(6) It will take many people to repair these items. If we were to classify the nature of their work, what would we say that they are producing?

Answer: Services.

(7) Therefore, we can logically say that industry produces both goods and services.

Bring out services.

c. Meets the needs of man.

(1) Who consumes these goods and services?

Answer: People, other industries, etc.

(2) Why do they use them?

Answer: They must use them to satisfy basic human needs. They use them because of a need created by society and/or industry.

(3) Give some examples where needs are created by society and/or industry.

(There really is not a clear and distinct line between basic need and created need. This decision is based upon the situation. For example; cosmetics for most people would not be a basic need, however, for psychological or physiological reasons it may be a basic need.)

(4) What are some of the basic human needs?

Answer: Food, clothing, shelter, etc.

d. For a monetary profit.

(1) Why is an enterprise established?

Profit

Answer: Basically an enterprise is established for a monetary profit, however, an additional motive might be to render a needed service for society. For example; a medical clinic operates for a profit, but renders a service for the community.

(2) What do they do with the money? What expenses do they have?

Answer: Buy needed items (food, car, home, clothing, services, etc.)

(3) Basically, what is purchased?

(The students will probably identify items.)

(4) How can these purchases be classified?

Answer: Goods and services.

(5) What happens to the money we pay for goods and services?

Answer: The people producing them pay for the human and natural resources used in producing them.

(6) Going back to the wages your father and mother earn, what happens to the money that is left over (assuming that there is any) after all of the bills are paid?

Answer: It goes for savings, recreation, purchase of new goods, etc.

(7) Similarly, what happens to the money that is left from product sales after all of the company's bills are paid?

Answer: It can be spent, it can be invested, it can be saved, etc.

(8) What shall we call money remaining after all costs are paid?

Answer: Profit.

e. Applies knowledge.

Knowledge

(1) Could the students of this class set-up and operate a medical clinic? If not, why?

(It should be brought out that they would lack the knowledge to do so.)

f. An institution in our society.

(1) So far we have established the fact that industry applies knowledge and utilizes human and natural resources to produce goods and services to meet the needs of man while making a monetary profit.

Institution

4. Supporting activities.

a. Supporting activity for the concept of utilizing knowledge.

(Teacher: Attempt to identify an enterprise or industry that requires knowledge to operate but that could be operated, or simulated, by eighth grade students in a short period of time. Examples: (1) placement agency, (2) various consultants, (3) sales survey.)

Activity:
If used, prepare materials about a week prior to this lesson.

b. Supporting activity for concepts of utilizing knowledge, human and natural resources, production of goods and services, and meeting the needs of man.

(1) Preparation:

(Gather enough ball point pens for each member in your class. You can get these from various insurance companies and other businesses in town. Disassemble the pens and place the parts in separate containers. Have enough containers to run several assembly lines. (If there are five parts to the pen and you have 20 students, then you should have 20 containers and four assembly lines.)

(2) Activity:

(a) (Demonstrate how the pen is to be assembled on the line and by individuals. Don't emphasize mass production or assembly lines.)

(b) (Have students assemble pens.)

NOTE: Have one non-working part so that one pen won't operate properly. Clip the writing end or put in a broken spring. Be sure to have a good part to replace the broken one.

(c) (Have each student test his pen. One will not work. When this is called to your attention, replace the broken part with the workable part.)

(3) Concluding discussion:

(a) What natural resources were used in making these pens?

Answer: The parts of the pens were made from natural resources.

(b) Did we use human resources?

Answer: Yes. The students were the human resources used to assemble the pens.

(c) Is the pen considered as a good or service?

Answer: It was our goods.

(d) Did we perform a service?

Answer: Yes, when we replaced a faulty part.

(e) You are all required to bring a ball point pen to class tomorrow. How have we satisfied your need for this requirement?

Answer: By assembling the pen in class and distributing them among the students so that they will have the pen to bring to class tomorrow.

(f) We have produced several ball point pens which are goods, and repaired one, which is a service. We did this by utilizing human and natural resources. We then satisfied a need for a pen for tomorrow's assignment by distributing these pens throughout the class.

c. Supporting activity for concept of profit.

(1) On the first day of class, instruct the students to bring 5¢ in pennies the next day.

Activity: If used, assign one day prior.

(2) On the day before the pen activity is begun, instruct the students to bring 10¢ in pennies.

(3) Upon the conclusion og the pen activity distribute the money in the following manner:

(a) Materials--5¢.

(b) Operational costs--2¢.

(c) Labor costs--5¢.

(d) Profit--3¢.

(Be sure to dock students' wages for obsences.)

(4) Pay the students their wages.

(5) Decide how to use the profit and carry out decision.

C. Conclusion

Can you now state or write your definition of industry?

This definition should be the same as, or similar, to the following: Industry is an institution in our society which applies knowledge and utilizes human and natural resources to produce goods and services to meet the needs of man for a monetary profit.

(Teacher: It is important that students express themselves in their own words. Memorization of the attributes shown above is of little value.)

V. Evaluation

(See evaluation items at the end of this unit.)

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor____________________ Date____________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)__________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________

____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________

____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________

____

6. Which activity did you use?____________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

____

LEVEL I - American Industry
UNIT I - Industry Today
Lesson 2 - Resources of Industry (2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

   A. Explain that industry cannot function or exist without resources.

   B. Identify the resources as natural and human.

   C. Name some natural resources which are renewable and some that are irreplaceable.

   D. Explain that in most cases a natural resource must be acted upon by a human resource if a change is to be made in the form of the natural resource.

II. Scope

The basic purposes of this lesson are to develop an awareness of resources as fundamental to industry, to divide these resources into two general groups, to develop some characteristics of the resources within the two general groups, and to show that synthetic changes in natural resources depend upon some action by man as a human resource.

III. Resources

   A. Instructional media

      1. FS: How Steel Is Made, available from:

         Educational Services
         U. S. Steel Corporation
         71 Broadway--Room 1800
         New York, New York 10006

      2. First Level film catalog.

      3. Construct-O-Kit: United States Resource Map by Sonya Rubin Fish, published by C. S. Hammond & Company, Maplewood, New Jersey. Price: $1.95. This is a 3-D wall map of the U. S. in color with 93 symbols of resources which can be mounted on the map.

      4. Field trip to observe natural resources.

      5. OT: Human Resources

B. Literature

1. America's Needs and Resources, Dewhurst and Associates, 1955, The Twentieth Century Fund, Inc., New York, Chapter 20, page 721 and pages 754-781.

2. Marvels of American Industry, Donald E. Cooke, 1962, C. S. Hammond & Company, Maplewood, New Jersey, Chapter 4, page 27 and Chapter 9, pages 56-58.

IV. Content Outline

A. Introduction

Introduce the lesson with one of the three options.

OT: Human Resources

Option #1:

1. Take students to some spot out of doors where they can see some distance about them.

Field trip

2. Define the term "resources" for the students, limiting the definition to natural resources and human resources.

   a. Resources: "Any supply that will meet a need." (Throndike & Barnhart High School Dictionary.) "A new and reserve source of supply or support." (Webster's New Collegiate Dictionary.)

   b. Natural resources--all the raw materials in our country--all the things man did not make.

   c. Human resources--all the men and women who could possibly be involved in all the phases of industry.

3. Have the students take pencil and paper and list all the natural resources they can see which would be useable for some product, such as (a) food (soil, fish, game, etc.), (b) a wood product (trees), (c) water power (lake, stream, etc.), (d) glass making (sand), (e) cooking (wood), (f) others according to locale.

4. (Point out that natural resources exist all about us.)

5. (Point out that any product or service depends directly or indirectly on some resource.)

Option #2:

1. (Take the students on a tour of the shop or lab. Have each student make a list of the resources which are available in the shop. (See definition of "resources" in Option #1.)

2. (Some of the resources which the student will observe will be raw materials whereas other resources will have been ~~processed~~ to some degree.)

3. (See if the students can identify the raw material from which the processed resources were derived.)

4. (Ask each student to identify a product which could be produced from the resources which he has recorded.)

Option #3:

1. (Make a bulletin board display showing illustrations of various resources, both natural and human, identifying the industry or product in which it is used if it is a natural resource, or the type of job being performed if it is a human resource. (See definition of "resources" in Option #1.)

2. (Provide several dozen magazines from which the students can find illustrations.)

3. (Arrange the bulletin board so that natural resources and human resources are separate.)

4. Activity #1

(Use kit on How Steel Is Made to show natural resources that go into the manufacture of steel.)

Activity #1
FS: How Steel Is Made (kit).

Teacher:

(The filmstrip, How Steel Is Made, is part of an instructional kit which the United States Steel Company makes available to any school in the nation upon request. In addition to the filmstrip, the kit contains samples of iron ore, coke, limestone, pig-iron and a steel rod. It also contains a very comprehensive guide which can be used to generate much discussion. NOTE: This kit provides a fine opportunity to point out the work the U. S. Steel is doing to develop good public relations. Ask students if they can think of other examples of public relations.)

5. Activity #2

U. S. resources.

(Using the Construct-O-Kit of United States Resource Map, assign specific students a resource which they are to look up outside of class to determine where they are found. Each student will mount his resource symbol appropriately on the map as a class activity.)

Activity #2
Construct-O-Kit of
United States
Resource Map.

Teacher:

(The United States Resource Map is a three-dimensional wall type map with many push-out illustrations of various resources. These illustrations can be mounted on the map to show where they are normally found or where they are most plentiful.

The map with its many illustrations of resources can be used effectively in identifying resources throughout the United States.)

To order the map, order:

United States Resource Map
by Sonja Rubin Fish.
Published by C. S. Hammond & Company,
Maplewood, New Jersey.
Price. $1.95

B. Activity and content

1. Activity #3

Activity #3

Resources for some common products.

Teacher:

(The purpose of this activity is to bring the student to an awareness of the resources used in producing some common everyday products.

Most of the products selected have a resource which is probably available locally.)

(Each student should be assigned a product. It may be necessary for him to do some research in order to determine the resources necessary to produce the product.

A display of the resources brought to class by the students should be interesting for the whole class and to other classes.)

Unit I
Lesson 2
Activity #3

Student:

You are to bring to class a sample or a picture (preferably a sample) of a resource which is necessary for the manufacture of one of the following products which will be assigned you. The sample should be adequate for display purposes. The following are the products from which your assignment will be made:

1. Paper
2. Concrete
3. Pillow
4. Chair
5. Bread
6. Steampower
7. Animal food
8. Heat
9. Electricity
10. Steel
11. Food
12. Brick
13. Plastic
14. Syrup
15. Glass
16. Aluminum
17. Pottery
18. Leather
19. Pencil
20. House
21. Clothes
22. Candy
23. Turpentine
24. Soap
25. Recreation

2. (Discuss some of the traits of some of the resources, especially in terms of renewable and irreplaceable.)

    a. (Identify some of the renewable resources such as forest, wildlife, fish, animals, soils, etc.)

    b. (Identify some of the irreplaceable resources, or at least are replaced slowly, such as oil, various metallic ones, coal, natural gas, etc.)

    c. (Discuss ways in which resources can be conserved, waste reduced, or used more efficiently. For example: Taconite process with iron ore, fertilizers for growing foods, government regulation, refining of petroleum, electroplating instead of hot-dip method of plating with tin, miniaturization, greater strength, use of substitutes such as plastics, plywood, scrub trees for papermaking, etc.)

    d. (Refer to the examples and note those that require the use of new resources or the development of other resources (fertilizers, alloys, plastics, and low grade or scrub trees).

    e. (Draw the conclusion that conservation and wise use of resources along with the development of new resources is necessary if we are to avoid the depletion of certain resources.)

3. (Show film to illustrate the idea of conserving resources.)

4. Activity #4

Human resources.

Teacher:

(The purpose of this activity is to bring the student to an awareness that humans are a resource which is necessary to industry.

A set of overhead transparencies, Human Resources, (Six in set, available from A. I.) illustrates many human resources for which industry is looking. The examples shown were taken from the "Help Wanted" sections of recent newspapers.

Point out that it becomes each student's responsibility to develop his potential as a human resource to make himself of value in an employment opportunity.)

Activity #4
OT: Human Resources.

Unit I
Lesson 2
Activity #4

Student:

You are to bring to class, for display purposes, an advertisement for an employment opportunity. This advertisement might come from a newspaper, a magazine, a bulletin, or other type publication. The advertisement should reflect industry's need for skills or special abilities. It should reflect the fact that industry is in a constant search for human resources.

5. (Discuss ways in which human resources can be used most effectively or developed to produce more efficiently.)

   a. Training.

      (1) On-the-job training.

      (2) Apprenticeships.

      (3) Cooperative training and education programs.

      (4) In service programs.

      (5) Evening adult education.

      (6) Higher age of compulsory education.

   b. Proper job placement in relation to ability.

      (1) Achievement tests.

      (2) Apptitude tests.

      (3) Personnel departments for evaluation and placement.

      (4) Time and motion studies.

   c. More promising working conditions.

      (1) Merit promotions.

      (2) The "brain drain" from other countries.

C. Conclusion

1. (Note and expand on the various resources illustrated. For example: Picture of trees--resource not only for lumber, but also fuel, paper, chemicals, turpentine, masonite, particle board, plywood, mulch (bark), plastics, cellulose, etc. Water for cooling, heating, washing, transportation, fishing, recreation, plant growth, etc.)

2. (Show how human resources are involved in the above as in research, special skills, design of machines, planning, operators, etc.)

3. The following is an example of the interaction which takes place between a natural resource and human resource.

(On the following pages you will find two interaction charts. Both examples list the natural resources in one column and the human resources in another with a blank column entitled interaction. The two examples may be run through a thermofax machine to produce an overhead transparency. Through class discussion you can use a grease pencil to fill in the interaction.)

Natural Resources	Interaction	Human Resources
Tree	Cutting down the tree.	Lumber jack and others.
Log	Transporting to mill.	Crane, tractor, and other equipment.
Lumber (green)	Sawing into lumber.	Sawyer and others.
Lumber (processes)	Dried, planed, edged, graded, and shaped.	Skilled workers and others.
Lumber yard	Evaluation and selection, transportation.	Salesmen and others.
Home	Building construction.	Architect, carpenter, and others.
Factory	Multitude of processes.	Researcher, engineer, craftsmen, operators, and others.

(NOTE: This is one example; attempt to apply this idea conceptually by identifying the commonality of this with other natural resource procurement.)

NATURAL RESOURCES	INTERACTION	HUMAN RESOURCES
iron ore		equipment operator
auto fenders		assembly line worker
completed auto		inspector
log		equipment operator
paper		pressman
newspaper		paper boy
wheat		farmer
flour		baker
bread		consumer

NATURAL RESOURCES	INTERACTION	HUMAN RESOURCES
tree ———		———lumber jack
log ———		———trucker
lumber (green) ———		———sawyer
lumber (processed)———		———skilled workers
lumber yard———		———salesmen
home ———		———architect
factory———		———engineer

V. Evaluation

(See evaluation items at the end of this unit.)

[illegible]
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor ______________________________ Date ______________________

Unit Number __________ Lesson Number __________ Date Lesson Started __________

1. Amount of time used to complete lesson (to nearest ½ class period) ________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain ______________________
____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain ______________________
____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain ______________________
____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain ______________________
____

6. Which activity did you use? ______________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

LEVEL I - American Industry
UNIT I - Introduction to Industry
Lesson 3 - The Environment of Industry (5 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Explain that American industry functions in an environment which is unique and that government, public interest, competition and private property are parts of that environment. He will be able to define government, public interest, competition, and private property and to state some ways in which each affects industry.

II. Scope

The major purpose of this lesson is to develop in the student an awareness of factors in his environment which makes American industry unique. The student should recognize that a democratic form of government, concern for public interest, competition and the free enterprise system and private property are all elements in the society in which he and American industry exist.

III. Resources

A. Instructional media

First level film catalog, Relationships--page 27.

B. Literature

1. Student booklet, Industry Today, pages 39-40.

2. The New Society, Peter F. Drucker, 1950, Harper and Row, New York.

3. Marvels of American Industry, Donald E. Cooke, C. S. Hammond & Company, Maplewood, New Jersey.

IV. Content Outline

A. Introduction

1. Often we hear the term describing someone as "like a fish out of water." The implication is that the individual is out of the surroundings or environment in which he can function or operate. A fish can't live or function when kept out of water. The water is an environment which is unique for fish.

2. American industry, too, functions in surroundings or environment which is unique. American industry would have difficulty functioning in Russia, Sweden, or Spain.

3. Some of the elements which exist to provide a unique environment for American industry are democratic government, public interest, competition, private property and resources. (See lesson 2 for resources.)

B. Activity and content

1. Government--is the excercise of authority over an organization, institution, state, etc. or those who direct the affairs of a state or district. Democratic government is an institution in our society which consists of elected representatives who are primarily concerned with the coordination of group activities and the protection of individual rights. (NOTE: Concepts basic to American industry are underlined.)

2. We might think of a democratic government as the key to the growth of American industry, but certain other factors of government have exerted a strong influence.

   a. Government has been durable, yet flexible. (Compare recent Supreme Court decisions with early decisions.)

   b. Government has been stable. (Civil War was only period of internal revolt.)

   c. Government has provided opportunity for immigration to build a work force. (Lenient immigration laws allowed influx of many skilled laborers.)

d. Government has provided equal rights for all and an opportunity to better one's status. (Bill of Rights and recent Civil Rights activity. The right of individuals to own property.)

e. Government has provided aids to the development of an extensive transportation system. (Railroad subsidies, highway improvement, airline subsidies, etc.)

f. Government has provided aids to the development of public schools. (Public interest--the combined interest of the total population takes precedence over others.)

g. Government has encouraged and been involved in numerous ways of promoting private enterprise. (Aids to small businesses, farm aids--the right to own an enterprise and compete for business.)

3. "The Record of U. S. industry is proof that capitalism in an unfettered (free from restraint) democratic society fosters human well-being." Marvels of American Industry, Donald E. Cooke, page 3, C. S. Hammond & Company, Maplewood, New Jersey.

4. Activity #1.

(Have a committee look up taxes paid by several local industries.)

Activity #1

Teacher:

(The purpose of this activity is to provide some tangible evidence that American industry does have some direct involvement in the functions of government. While this involvement may be complex and extensive, one such involvement of a type which is common to most people would seem adequate.

This activity could be assigned for completion at the same time as activities #4, #9 and #10. The student committees involved could then all make reports during one class period--all related to the environment of American industry.)

Unit I
Lesson 3
Activity #1

Student:

You are to choose three enterprises which are known to your classmates. These enterprises could be local, well-known area enterprises or nationally known enterprises.

You are to search out the amount of taxes paid by each selected enterprise.

You may get this information from the annual report, some person in management, Chamber of Commerce, manufacturer's association, or from a local tax collection agency.

From your findings, would you conclude that each enterprise is involved in government as far as taxes are concerned?

5. Public interest.

In America, the government belongs to the people and exists to serve and aid the people rather than as in many countries where the people are directed by the government. In our American method, we firmly believe that the rights of the majority must be respected and protected even when it is at the expense of individuals.

This is called the area of public interest. It is concerned with the combined interests of the people in this country.

6. Some examples of concern for the public interest are: (Comment briefly on each as it serves the public interest.)

   a. Child labor laws.

   b. Minimum wages laws.

   c. Concern for water and air pollution.

   d. Sherman Anti-trust Act of 1890.

   e. Traffic safety laws.

   f. City zoning laws.

   g. Industrial safety laws.

7. Activity #2.

Research on examples of public interest.

Activity #2

Teacher:

(The purpose of this activity is to have the student do some research on ways in which public interest is being protected.

This activity could be assigned for completion at the same time as activities #3, #9 and #10. A sampling of these reports may be given as time permits.)

Unit I
Lesson 3
Activity #2

Student:

Some examples of concern for public interest are: (a) child labor laws, (b) minimum wage laws, (c) concern for water and air pollution, (d) Sherman Anti-trust Act of 1890, (e) traffic safety laws, (f) city zoning laws, (g) industrial safety laws, (h) minimum prices, and (i) minimum profit. There are also many other examples of laws and controls which reflect concern for public interest.

You are to select one area of concern and find whatever information you can about the following points: (a) for what purpose was this law or control instituted?, (b) what rights are denied to certain individuals?, (c) in what way does the general public benefit from this law or control?

Be prepared to present the three main points of your research in a report to the class.

8. Because industrial safety laws apply directly to conditions and activities within school laboratories, it is important that time be used in acquainting students with some of the laws and agencies which establish safety standards.

   a. Many states have an agency or commission for safety. For example: Industrial Commission of the state of Wisconsin.

   b. Insurance companies set minimum safety standards.

   c. Division of Accident Prevention, Bureau of State Services of Public Health Services assists and provides technical service to state and local agencies.

   d. National Safety Council conducts research and carries on an educational program.

   e. State and local safety organizations promote safety.

   f. Most enterprises have a safety program as part of their company policy.

9. Activity #3.

   An Introduction to Safety.

   Students are to read the activity sheet, "An Introduction to Safety," and answer the questions on the sheet titled "Safety."

   This assignment should be thoroughly discussed in class.

Activity #3

Unit I
Lesson 3
Activity #3

AN INTRODUCTION TO SAFETY

You are now living in an era of complete revolution compared to the lifetime of your grandfather. This revolution applies in almost every phase of living, but nowhere is it any more complete than in the attitude toward prevention of accidents in industry and in trades. Safety training has become a by-word to industrial workers and those responsible for production. It wasn't long ago--during the lifetime of your father and certainly during the work-life of your grandfather--that accidents at work were an accepted occupational hazard. A cabinet maker took it for granted that his fingers--and maybe a hand or arm--were expendable during his lifetime of work at his chosen trade. Today you can still find old time tradesmen who hold no resentment over the fingers that they lost through accidents in their occupations. In the extremely hazardous occupations, such as in the lumbering camps and sawmills, accidental death was regretable, but nothing (or little) was done to prevent a recurrence of such a fatality. If the worker who was killed was liked by his fellow workers, they often took up a collection among themselves for the widow and children, but little was done about the cause of the accident.

This was the attitude toward accidents and injury not too many years ago.

At the present time, safety in all trade and industrial occupations is so basic and fundamental that millions of dollars are spent each year throughout our country in promoting safety. It is considered so important that a worker may be dismissed from his job for repeated failure to observe safety rules.

An example is the handbook of the Manitowoc Shipbuilding Company, Manitowoc, Wisconsin. It has this to say about safety: "'Safety First' is not merely a slogan in this plant but is a Company policy. We do not only expect, but we insist that all workers work safely; not only for their own well-being but also for the safety and well-being of their fellows. This Company, by continuous inspection, tries to forestall accidents by immediately eliminating, as much as possible, unsafe or hazardous conditions. We ask you to notify your foreman whenever you observe unsafe practices or hazardous conditions so that we may do our part to make this plant the safest possible place to work."

This statement is typical of all industries.

There are a number of reasons why trades and industries have worked hard and spent huge amounts of money to provide safe working conditions for workers. They can be divided into several groups and then discussed separately.

1. Humanitarian reasons--No one likes to see a person injured in an accident. It is disturbing and disagreeable to those who witness a serious injury. Most of us are anxious to avoid anything that might disable a person for the rest of his life. In fact, we feel sincerely sorry when we see or meet a person who is disabled. All of us also realize the great hardship put onto the wife and children of a man who is fatally injured or disabled. These are all things which go against our sensitive nature.

2. State Industrial Commission--Effective in 1912, Section 101 of the Statutes of Wisconsin established an Industrial Commission with its first General Orders on Safety. Section 101.06 of the General Orders on Safety in effect at the present time includes statements such as: "Every employer shall furnish employment which should be safe--and shall furnish and use safety devices and safeguards,--and shall use methods and processes adequate to render such employment safe,--and shall do every other thing reasonable and necessary to protect life, health, safety and welfare of such employees.--"

   Section 101.07 (2) reads as follows concerning the employee (worker): "No employee shall remove, displace, damage, destroy or carry off any safety device or safeguard--, nor shall interfere in any way with the use thereof--, nor shall any such employee interfere with the use of any method or process adopted for the protection of any employee--, nor fail or neglect to do every other thing reasonably necessary to protect the lives, health, safety, or welfare of such employees or frequenters."

   In other words, in the state of Wisconsin you are guaranteed by law the privilege of working under safe conditions both in terms of your employer and the people with whom you are employed.

3. A good safety program is profitable.--The training of a worker in trades or industries of today is a long and expensive procedure. It is not only expensive to the worker, but especially to the employer who trains him to do a highly specialized job. Trades and industries are willing to assume the expense of such training provided they are assured of the productive capacity of that worker for a long period of time. However, if that worker becomes injured and disabled, he can no longer carry out the responsibilities of his job and his productive capacity is lost temporarily or permanently. It then becomes necessary to train another worker for that job--which means more time and expense.

It is also possible that other jobs in that trade or industry are dependent on the injured worker. That means a slow-down in production all along the line--and another loss of time and expense. Such conditions can "snowball" until the overall expense caused by an injured worker becomes so great and complex that it is hard to calculate. It is far cheaper to provide safe conditions for all workers in order to insure the prevention of accidents.

Another item of expense to the employer is concerned with the rate to be paid for accident insurance. If a certain enterprise such as the previously mentioned Manitowoc Shipbuilding Company should have a large number of accidents in comparison with another similar enterprise, the accident insurance rate for Manitowoc Shipbuilding would be much higher than for the enterprises with fewer accidents. Here again it is common sense to provide a good safety program in order to save money on insurance rates.

So far we have considered only the expense to the employer without thinking of the loss of pay, medical and other expenses concerned with the injury, and loss of training with new adjustments to be made on a new job for the employee. Imagine your own family faced with loss of pay for several months, with doctor and hospital fees running into hundreds and possibly thousands of dollars, and then to be followed by the training and adjustment necessary for an entirely new type of trade or occupation. This can become an overwhelming personal burden.

In a recent discussion of safety training, it was pointed out that training in safe procedures and habits must begin in young people as they are growing into their lifetime careers. Tests and surveys have established this as a fact. Therefore, it is important that you as a student learn safe methods for doing all jobs or activities which have any possible hazard associated with them. It is necessary for you to make safety a habit at all times. You must analyze situations to find a safe way, you must practice safe methods for the things you do habitually, and you must observe all signs, posters, rules, etc. which are posted for the purpose of acquainting you with situations which are known to be hazardous. In this way you may look forward to the privilege of living a career and lifetime free of the burden, pain, anxiety, and discomfort of serious injury in your occupation.

SAFETY

Reference: Information sheet, "An Introduction to Safety."

Questions:

1. What was the attitude toward industrial and occupational injuries many years ago?

2. List two reasons why safety is important in present-day industries.

   a.
   b.

3. According to the handbook of Manitowoc Shipbuilding, "Safety First" is not merely a slogan but a ______________ ______________.

4. List three reasons why trades and industries have done so much to provide safe working conditions.

   a.
   b.
   c.

5. Does your Industrial Commission put responsibility on the employer or on the employee (worker)?

6. List three ways in which a good safety program can be profitable.

   a.
   b.
   c.

7. What hardships may a worker suffer as a result of injury?

   a.
   b.
   c.

9. In what general age group is safety education most effective?

10. What three things are necessary for you to do to make safety a habit?

    a.
    b.
    c.

10. Activity #4.

(Review general information for safety. Review with the students the sheets on "General Information for Safety and Protection in All Shops."

Activity #4

Some of this material may not be pertinent to your laboratory situation, but students should be exposed to the rules for the sake of possible exposure to hazards in other locations.

Some type of safety quiz might be given at the conclusion of this activity. Design this quiz for your laboratory.

Students could be conducted on a tour of the shop along with the discussion of safety rules.)

Activity #5

(NOTE: For activities #3, #4, and #5 see appendix of this lesson. Use as necessary to conduct classes safely in your laboratory.)

11. Competition--the following thoughts on competition came from The New Society, Peter F. Drucker, Chapter 31, pages 277-280, Harper and Row, New York.

    a. The only requirement for a competitive market is that the consumer have a real choice between alternate ways to satisfy the same need, and that this choice determines the size of the market and the price of the product.
    (Bring out that businesses compete for the chance to satisfy needs of customers and do so intending to make a profit.)

    b. We believe that workable solutions to management problems can be found only if a business or enterprise functions in a competitive market where prices are established by consumer choice between alternate or different products.
    (Management involves efficient use of human and natural resources in order to produce goods or services.)

    c. In a competitive economy, an important responsibility of those who determine policy is to adapt product, process and organization to change, to foresee, and to innovate.
    (Industry is that institution which makes up the competitive economy.)

    d. Sherman Act of 1890 was the anti-trust act which preserved the practice of competitive marketing in the United States. (Government's role in public interest.)

12. Activity #6.

Activity #6

Comparison of competitive items.

Teacher:

(The purpose of this activity is to have the student compare prices from several different sources in order to see the effect of competition. It would be best if the student could be assigned some commodity where there is a greater likelihood of variation or fluctuation in price.

It may be possible to create a little more interest if the prices to be compared are from the local community or if local prices are compared with prices from a mail-order catalog. Specifications and quality must be comparable.

Unit I
Lesson 3
Activity #6

Student:

You are to make a comparison of prices for the following item:

________________________________.

You are to contact at least three sources for buying this item and make a record of the price of the item at each source. If possible, secure these prices from local sources, although you may find it necessary or advantageous to get some of the prices from mail-order catalogs or from out-of-town sources.

Source or dealer #1 Price $__________
Source or dealer #2 Price $__________
Source or dealer #3 Price $__________
Source or dealer #4 Price $__________
Source or dealer #5 Price $__________

Determine answers to the following questions:

1. What was the lowest price being asked? __________

2. What was the highest price being asked? __________

3. From which dealer would you purchase this item? __________

4. Were there considerations other than price which you would consider in purchasing this item?

5. Do you see evidences of competition between dealers in the sale of this item?

In assigning a commodity, be sure that exact specifications are given so that prices will be given for comparable items. For example: .22 long rifle ammunition might lead to differing prices because of its being hollow-point, high-speed, or standard. Therefore, .22 long rifle, high-speed, regular tip, should be specified.

Besides price, it may be interesting to also compare quality and service.)

13. Private property.

Throughout history, there has been a great deal of concern about the individual's right to own property. Wars have been fought, revolutions have taken place, frontiers have been expanded and social standing has been determined by mans' ownership of property which becomes identified as private property. Private property as we commonly think of it, has these aspects:

a. Ownership or possession by an individual where legal title to the property is established.

b. Control or how it is used by an individual, including maintenance, improvement and protection, (both physical and legal) which also includes involvement in governmental taxation. Control, however, must remain within the legal limits of public interest or concern for the welfare of the general public.

NOTE: A new approach to private property is developing in the ownership of large corporations by small stock holders in which possession of stocks assumes ownership and a share of the profits, but excludes control. In these cases, control is centered among those large stock holders whose specialized background qualifies them for responsibility of control. In a large corporation which affects the welfare of a whole nation, control is not a privilege to be bought and sold, but becomes a very serious matter of responsibility.

c. Benefits or profits which may result from that property.

14. Activity #7.

Attitude of other countries toward private property.

Activity #7

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Unit I
Lesson 3
Activity #7

Student:

Your committee is to determine the attitude of the following countries toward private property. You may want to classify their attitude as: (a) encourage, (b) prohibit, (c) limit, or (d) allow with restrictions.

1. United States
2. Russia
3. England
4. Italy
5. Spain
6. Canada
7. China
8. Sweden
9. Japan
10. Israel

From the results of your research, would you conclude that private property, as we experience it in the United States, is a universal privilege?

Teacher:

(The purpose of this activity is to bring the student to an awareness that the ownership of property is not an inherent right as is assumed by citizens of the United States.

Activity #7

This activity could be assigned for completion at the same time as activities nos. 2 and 7. The student committees involved in the various reports could all make their reports during one class period--all related to the environment of American industry.)

C. Conclusion

In this lesson on environment of industry we have talked about government, public interest, competition, and private property. Activities nos. 2, 6, and 7 should have been assigned. The intention in these activities was to involve all the students in the class in one activity, not to burden each student with all four activities.

Refer to activities #1, #4, #6, and #7.

If reports for the activities are brief and to the point, it should be possible to cover all the reports in one period. However, all students may not be reporting because of a time shortage.

As each report is concluded, the teacher should emphasize that the report represents the environment in which industry operates.

The conclusion of all the reports should tie government, public interest, competition, and private property together as the unique environment of American industry.

V. Evaluation

(See evaluation items at the end of this unit.)

Unit I
Lesson 3
Activity #4

APPENDIX - SAFETY

GENERAL INFORMATION FOR SAFETY AND PROTECTION IN ALL SHOPS

A. Wearing Apparel
  1. Dress properly for shop work.
    a. Take off coats, jackets, and sweaters.
    b. Wear an apron, shop coat, or coverall.
    c. Roll up shirt sleeves above your elbow or button them at the wrist.
    d. Don't place a pencil on your ear.
    e. Keep shirt tails inside your trousers.
    f. Avoid any loose or dangling clothing or jewelry.
    g. Remove rings.
    h. Avoid clothing with a fuzzy finish such as flannel materials when working near an open flame.
  2. Always wear safety goggles when operating grinders, circular saws, lathes, router-shaper, drill presses, chipping tools, etc.
  3. Long, loose locks of hair can easily be caught in revolving machinery and pulled out, causing serious scalp injury. Have your hair cut short, tied back, or tightly covered.

B. Shop Conduct
  1. Only one person at each work station (bench or machine) unless given permission otherwise by the instructor.
  2. Students will not operate machines until:
    a. Safety for particular machine has been studied.
    b. A demonstration has been given by instructor.
    c. Approval of instructor is given.
  3. Power machinery is not operated when the instructor is out of the shop.
  4. No one is to make any loud or unusual noise except in an emergency.
  5. Always turn off power when you leave machines.
  6. Clowning, scuffling, pushing, running, and throwing objects are dangerous practices and are forbidden at all times.
  7. You must avoid distracting the attention of students using a machine. If it becomes necessary to interrupt a machine operator, always approach him from in front and wait until he recognizes you. Do not visit with the operator.
  8. Be sure to have a substantial breakfast before coming to school in the morning. A person who doesn't eat breakfast may become faint and fall into running machinery, against sharp or dangerous equipment, or against someone operating a machine.
  9. Never use open flames or strike sparks in a room where flammable liquids are used or stored.

10. Be agreeable with your neighbor workman. Respect his rights and privileges. Remember, the prevention of accidents today will help make a living tomorrow.
11. Notify your instructor if you see anyone violating safety instructions. You may save yourself or someone else from serious injury.

C. Personal Protection

1. If you feel ill, report to your instructor at once.
2. All accidents or injuries, no matter how small, should be reported to the instructor immediately.
3. All guards must be in place when a machine is in use. No guards are to be removed. Report any guard that doesn't work properly to the instructor.
4. Power to a machine must be turned off and the machine must come to a dead stop before you examine or take hold of cutters, or before oiling, cleaning, or adjusting any parts.
5. Only the person operating a machine may start and stop it.
6. Permission to throw in the main power switch must be obtained from the instructor.
7. You are not forced to use any power-driven machine. You may be excused from using any machine by seeing your instructor.
8. If you are in doubt about the use of any tool or machine, ask your instructor for help.
9. If you see oil or grease on the floor, wipe it up. You may prevent someone from taking a serious fall.
10. Carry edge and sharp pointed tools with cutting edges down.
11. Keep trimmings or scraps off the floor. Place them in scrap boxes provided for that purpose. They are especially dangerous around machines.
12. Be sure to check set-up carefully before turning on machine.
13. Keep tools off machines to prevent vibration from drawing them into contact with moving parts.
14. Learn the correct sound or tune of each machine and carefully investigate any sound that is not normal.
15. When climbing to reach high objects, use proper precautions so that you do not slip or fall. If a ladder is used, have someone hold the ladder.
16. Turn off gas at safety valve when you are through using gas furnace.
17. All special set-ups must be checked by instructor before machine is turned on.
18. Get help when it is necessary to lift heavy objects.
19. Nothing should be hung on fire extinguishers, and the area around them should be kept clear so that they may always be reached without delay.
20. Always remove scraps from your bench or machine with a brush rather than with your hands. There may be sharp or jagged particles among the scraps.
21. Report any odor of gas in the room. Gas fumes may make you sick or cause an explosion.

22. All portable electric tools must be disconnected when not in use.
23. When using any portable power tool, make sure that the tool is equipped with a ground wire on a three prong plug, and that the tool is plugged into an appropriate receptacle for the three prong plug.
24. When using an extension cord, see that it lies flat on the floor.
25. Report any worn or frayed electrical cords, or broken plugs or sockets.
26. Do not run extension cords over radiators or steam pipes, through door jambs, or through windows that must be closed.
27. When using air under pressure be sure that the air stream is not directed toward you or any other person. Cleaning your clothes or any part of your body with the air hose is forbidden.
28. If a fuse or circuit breaker opens, the circuit is either overloaded or defective. Immediately report the situation to the instructor so he may check or correct the condition.
29. Never place a coin behind a fuse, nor a wire or other jumper around it. This destroys the protection which fuses are intended to give.
30. When fuse plugs or cartridges are pulled and laid in the bottom of the switch panel, it is a sign that that machine should not be used.
31. Wear proper eye protection when watching anyone operating welding or oxyacetylene cutting equipment.
32. The welding or oxyacetylene cutting of used barrels, drums, tanks, or similar containers is forbidden, unless under the close supervision of the teacher.
33. Do not use any oil on any welding or cutting equipment. An explosion may be the result.
34. Assume that furnaces, soldering coppers, etc. are hot until you find out otherwise.
35. When using a drill press, always clamp work in a vise or to the table. Most serious accidents on the drill press occur because of neglecting to do this.
36. Remove the jacobs key or drift from the drill press immediately after using to avoid danger of starting the drill with them in place.
37. Never grind non-ferrous materials on the grinding wheel.
38. Always deburr sheet metal immediately after cutting either by machine or by hand to prevent later injury to yourself or others from thistles or a jagged edge.
39. Do not use your fingers to remove waste stock from the vicinity of a moving blade on any machine. Use a stick for this purpose or allow the machine to come to a complete stop and then remove the waste stock.
40. Tool rests on grinders must be within 1/16 inch of the grinding wheel.

D. Care of Tools and Materials

1. Do not stack tools at your work station.
2. Have all parts of tools assembled when returning them to the tool panel.
3. Hammers and mallets with loose or damaged handles should be reported to the instructor.
4. Keep tools sharp. Dull tools are more dangerous than sharp tools.
5. Report any breakage or damage to tools or machinery to the instructor immediately.
6. When handling long articles, one person should be at each end.
7. Place all soiled rags in metal covered safety containers.
8. Keep rags away from machines that are in operation.

(At this point, the student should be made to realize that he is obligated to a strict safety policy in all activities within the shop or lab because safety is public interest in his welfare and the health and welfare of those who work with him. Safe practices are a part of the environment in which American industry functions. The school shop intends to operate within this picture of American industry.

You may want the students to sign some type of safety pledge. Of the two samples which are attached, the first is for a wood shop where hand tools and simple machines are used. The second is for a wood shop where machines are used extensively.)

Activity #6

(NOTE: This pledge should be modified according to the type of shop and equipment available. See Activity #4.)

Unit I
Lesson 3
Activity #6

SAFETY PLEDGE

I, ________________ ________________, a student in ________________ during _________ period, agree to abide by the following safety rules for the sake of my own protection and the protection and well-being of my classmates, because I feel that accidents are not a necessary part of life and because I am convinced that conditions leading to accidents can be controlled by me and others with whom I work. I realize that repeated violations of safety rules may result in disciplinary action including expulsion from the American Industry program.

1. I will dress properly for shop work. I will:
    a. Roll sleeves above elbows or button them at the wrist.
    b. Wear an apron.
    c. Carry no pencil on my ear.
    d. Remove all loose or dangling clothing or jewelry (including loose shirt tails).
    e. Remove sweater, jacket, or coat.

2. I will wear appropriate eye protection any time I do the following:
    a. Use the grinder.
    b. Use the disk sander.
    c. Use the planer.
    d. Work on the lathe.
    e. Drill on the drill press or with portable electric drill.
    f. Scrape hardened glue.
    g. Use the portable router shaper.

3. I will not allow scrap wood to remain on the floor because scrap wood could cause someone to slip, stumble, or twist an ankle. I will put scrap wood in the barrels which are provided for scrap wood.

4. I will not fool around or be a part of any nonsense in the shop at any time. Not only may I be injured through nonsense, but some innocent classmate might be seriously injured.

5. I will immediately wipe up any spilled oils, greases, or finishing materials in order to avoid slippery conditions.

6. I will not use any machine or power tool until I have been thoroughly instructed in the use and safety of the machine by the teacher.

7. I will not use any machine or power tool unless I personally get permission from the teacher at the time I intend to use the machine.

8. I will not touch, tamper with, or place any tools or materials on any machine unless I have permission to use that machine.

9. I will stay away from anyone who is operating a machine.

10. I will handle all tools in a manner that will not cause injury to myself or anyone else.

11. I will walk at all times in the shop. Running could result in a very bad fall.

12. I will eat a substantial breakfast before coming to school in the morning if I have a shop class in the morning. I realize that not eating breakfast might cause me to faint or become upset while doing shop work.

13. I will immediately notify the teacher if I observe anyone violating a safety rule or doing anything which might lead to injury for anyone in the shop.

14. If I feel ill or upset, I will immediately notify the teacher.

15. I will report to the teacher any injuries which happen to me, no matter how minor they might be.

16. If any shop activities appear to be overly hazardous, or if I feel that I need more supervision before going ahead with the shop activity, or if I feel unsure of myself while working in the shop, I will immediately notify the instructor of my feelings.

17. As an indication that I have read and understand each of the rules which are listed, I will write my name after each one.

(NOTE: This pledge should be modified according to the type of shop and equipment available. See Activity #4.)

Unit I
Lesson 3
Activity #6

SAFETY PLEDGE

I, ________________ ________________, a student in ________________ during ________ period, agree to abide by the following safety rules. I realize that working with woodwork machines can be hazardous unless certain rules and precautions are rigidly observed. I, therefore, make this pledge of cooperation in order that my safety and the safety of my classmates may be assured. I fully realize that repeated violations of safety rules may lead to disciplinary action including expulsion from the American Industry program.

1. I will dress properly for shop work. I will:
    a. Roll shirt sleeves above elbows or button them at the wrist.
    b. Wear an apron.
    c. Carry no pencil on my ear.
    d. Remove all loose or dangling clothing or jewelry (including loose shirt tails).
    e. Remove sweaters, jackets, or coats.
2. I will wear appropriate eye protection every time I use the following machines: grinder, disk sander, planer, variety saws, radial saws, router shaper, lathes, drill press and portable electric drills; and when scraping hardened glue.
3. I will pick up any scrap wood from the floor as scrap wood on the floor could cause someone to twist an ankle, or slip and stumble into a machine or against someone working on a machine.
4. Before machining any lumber in the shop, I will see to it that the lumber is free of any nails, sand, paint, or loose knots.

5. I will not use any of the machines for trivial operations.

6. I will be extremely careful to observe minimum sizes of materials to be used on machines. I will also avoid using any small pieces of lumber on any machine.

7. I will be sure that the power is off at the wall switch or the main power panel before I take hold of or examine any blades or cutters.

8. I will never leave any machine while it is running or still turning over unless adequate precautions have been taken to protect all other members of the class from any possible injury at that machine.

9. I will use safety holders or devices whenever it is necessary to work close to a blade or cutter.

10. I will have a "take-off man" or assistant anytime I work with long boards or any material which is difficult to handle.

11. I will be sure that any portable electric tool which I use is equipped with a ground wire on a three prong plug and that it is plugged into an appropriate receptacle for the three prong plug.

12. I will not use any machine or power tool unless I have been thoroughly instructed in the use and safety of the machine by the teacher.

13. I will not use any power tool or machine unless I personally get permission from the teacher at the time I intend to use the machine.

14. I will not touch, tamper with, change adjustment of, turn on or turn off any machine unless I have permission to use the machine at that particular time.

15. I will eat a substantial breakfast before coming to school in the morning if I have a shop class in the morning. I realize that not eating breakfast might cause me to faint or become upset while working in the shop.

16. I will immediately notify the teacher if I observe anyone violating a safety rule or doing anything which might lead to injury for anyone in the shop.

17. If I feel ill or upset, I will immediately notify the teacher.

18. I will report to the teacher any injuries which happen to me, no matter how minor they might be.

19. If any shop activities appear to be overly hazardous, or if I feel that I need more supervision before going ahead with some shop activity, or if I feel unsure of myself while working in the shop, I will immediately notify the instructor of my feelings.

20. As an indication that I have read and understand each of the rules which are listed, I will write my name after each one.

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/65

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor__________________________________ Date______________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain______________________
____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____
____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain______________________________
____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____
____

6. Which activity did you use?______________________________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

LEVEL I - American Industry
UNIT I - Industry Today
Lesson 4 - The Basic Parts of Industry (9 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Relate the thirteen basic concepts of industry to the activities involved in the operation of an enterprise. For example, the student will be able to identify the purchase of supplies as procurement, the training of personnel as management, the making of a detailed drawing as communication, the selling of a product as marketing, etc. or vice versa.

II. Scope

This lesson is organized around the involvement of the class in an enterprise out of which is to be drawn a recognition of the thirteen basic parts of industry. The enterprise should provide activities with some identifiable relationship to all of the basic parts of industry.

III. Resources

A. Instructional media

See Level I Film Catalog.

B. Literature

1. Student booklet, Industry Today, pages 3-29 and 33-38.

2. Manufacturing in the School Shop, Haws and Schaefer, 1954, American Technical Society, Chicago, Illinois.

3. Modern Woodworking, Willis H. Wagner, 1967, Goodheart-Willcox Company, Homewood, Illinois Unit 21, pages 21-1 to 21-13. (NOTE: While this book is a woodwork text, Chapter 21, Mass Production, is excellent for anyone planning a production activity.)

4. The Evolution of Mass Production, Ford Motor Company, Dearborn, Michigan.

IV. Content Outline

A. Introduction

Industry appears to be a complex institution that defies comprehension by anyone but the financier, industrialist, or tycoon. How can it be possible for us to understand anything so gigantic when we have so little time and only a classroom laboratory in which to work?

First of all, we should realize that all enterprises, whether they are large or small, have some common or basic characteristics. (Have the students refer to pages 5-6 in the student booklet, Industry Today, to point out the difference between industry and enterprise. In the first two paragraphs we have referred to both.) If we set up a small enterprise in our classroom, we should be able to recognize these basic characteristics. In this way we can begin to understand an enterprise of any size--and to comprehend this complex institution which we call industry.

Note the simplicity in business. Bring out the basic commonalities. (Ref.: Activity #1)

B. Activity and content

1. Activity #1

Let's decide on an enterprise. (Need)

Activity #1

Teacher:

(You may want to use a brain-storming technique at this point. The first decision will undoubtedly have to do with a product. However, many questions will arise as you discuss the selection of a product. Besides making a decision on a product, make a record of the questions being asked in order to begin relating the questions to the thirteen concept areas.)

The questions asked and the relationship to concept may be as follows: (These are not discussion questions nor do they require an answer at this time.)

a. What would be a good product?--Research

b. How can it be made?--Research

Refer to the Dick and Dan story in Student Booklet #1

c. Can we get materials?--Procurement

d. Who will do the various jobs?--Management

e. Who will be the boss?--Management

f. How much will it cost to make it?--Finance

Refer to Dick and Dan story

g. For how much can we sell them?--Marketing

h. What shop equipment will we need?--Property

i. Do we have a working drawing?--Communication

j. How will we get them to the customers?--Transportation

k. Will we get paid equal amount?--Finance, Management and Relationships

l. How will we make them?--Production and Processes

m. Could we make them from a different material?--Materials

n. Will we have to do all the work?--Energy

o. How will we contact potential customers?--Communication and Marketing

p. What incentives do our workers have?--Relationships

q. Will we sell them to the students?--Marketing

r. Will we make money on this?--Finance

Some suggested products which could be manufactured in a school shop are: (Select one that will not take more time than you have available.)

a. Fishing spinner.

b. Puzzles.

c. Silk screened pennant.

d. Silk screened felt patch or sticker.

e. Salt and pepper shakers.

f. Cheese board.

(Plans and production packages for some of these products are available at the end of this lesson.)

In selecting the product, you may want to guide the students into choosing one that will provide an opportunity for you to give some basic instruction in the use of simple tools and machines. However, remember the objective of the lesson. Do not distort the lesson into a tool and machine procedures unit.

2. Activity #2

Activity #2

Let's organize the activities necessary to produce our product.

Teacher:

(Here again you may want to use a brain-storming technique in order to let the students develop the various activities to be performed in producing and marketing the product.

NOTE: These activities are simple examples of enterprise and all follow a basic sequence.

You will want to keep a record of the activities which are suggested so that they can be related to the thirteen concept areas.

The following are activities similar to the ones which should be arrived at by the class. The activities are related to the thirteen concept areas for use in identifying the thirteen concepts at the conclusion of the lesson. At this time, there is no need for a specific order.)

a. Decide on a product. (Need)

b. Determine the materials to be used.--Research and Materials

c. Determine the cost of materials.--Materials and Finance

d. Make up a detailed drawing.--Communication

e. Construct a prototype.--Research

5/6

f. Use the prototype to conduct market research.--Marketing

g. Determine processes to be used.--Processes

h. Are appropriate machines and tools available?--Property (If not, can you identify a production means?--such as purchase or sub-contract)

i. Organize the class for responsibilities.--Management

j. Secure the needed materials.--Procurement

k. Keep records of purchases and materials used.--Finance

l. Organize the production system.--Production

m. Lay out the production line with flow of materials.--Production and Transportation

n. Make production job selections.--Management

o. Train personnel.--Management

p. Make a trial run.--Production

q. Produce the product.--Production

r. Sell the product.--Marketing and Transportation

s. Determine cost, sales, profit or loss.--Finance

t. Recognize that work is done by some energy source.--Energy

u. Recognize the need for cooperation and a good feeling with customers.--Relationships

A simple organization for the class along with possible responsibilities accompanies this activity. Any simple workable organization can be used if you feel that this one is inadequate. However, whatever organization is used, it should provide a simple means of organizing an enterprise for the production and marketing of a product.

How did Dick and Dan organize?

Be sure that records are kept of all purchases, all labor hours, all materials used and all income. This information will be used in the Unit III lessons.

3. Activity #3

Let's get ready to produce our product.

a. Committee on production.

   (1) Engineering.

      (a) Secure or make a working drawing. (What part/s will you make and buy.)

      (b) Construct a prototype.

      (c) Determine processes to be used in producing.

      (d) Are machines and tools available?

   (2) Research (product).

      (a) Are materials available?

      (b) Can you produce the product?

   (3) Procurement and finance.

      (a) Locate source of funds.

      (b) Determine cost of the materials.

      (c) Secure the necessary materials.

   (4) Production.

      (a) Organize the production system.

      (b) Lay out production line with flow of equipment and materials.

      *(c) Make a trial run.

      *This step might involve all the students in the class.

b. Committee on marketing.

Activity #3

To expedite this production the teacher should:

-Have a working drawing.
-Have a prototype.
-Have teacher help.

-Have some material available.

-Have these on hand.

-Have jigs, fixtures, set-ups, bins, etc.

(1) Determine estimated product cost and estimate sale price.

(2) Conduct market research using prototype as sample.

(3) Determine official sale price.

(4) Set up an advertising program.

c. Committee on administration.

(1) Be sure to keep accurate records of all purchases and all materials used. You may want to use some of the forms from the Finance Lessons in Unit III, lessons two and three.

-Have forms available for record keeping.

(2) Select the students for the various production jobs. Try to use people with special abilities in key positions. Keep records of labor hours and dollars.

-Time cards may be used to record labor hours and dollars.

(3) Train students for the various jobs.

(4) Determine the cost of everything used in the production, keep a record of all sales and money received, and determine the profit and loss.

d. Teacher:

(If the product around which you organize your enterprise is small and does not provide participation for all members of the class, it may be advisable to organize two or three enterprises in order to involve all the students. Some competition between enterprises could provide interesting motivation.)

e. (Make a trial run. You may find it advantageous to use scrap materials or cheap substitute materials at this point. The trial run should show up trouble spots on the production line, inadequate training, and poor timing of parts and materials. Be sure that the supervisors know what to look for in order to keep production moving.)

f. Are you ready to produce a product? Evaluate all your plans and practices up to this point and make whatever improvements are necessary.

4. Activity #4

Show a film about making a product.

Activity #4

(See Level I Film Catalog.)

After seeing one of these films, you may identify some weaknesses in the organization of your enterprise. With your students, attempt to correct the weaknesses before starting production.

5. Activity #5

Activity #5

Let's produce our product.

a. Check the following points:

(1) Is our organization complete? Does every job have a person? Does every person have a job?

(2) What is the production sequence?

(3) How many of our products will we make?

(4) Has a record been made of all supplies?

(5) Are all safety devices in operating condition and being used?

(6) Will the close of the class period present a production problem?

(7) Do we have adequate facilities for storing our products until they can be sold?

b. Proceed to manufacture the necessary number of products.

6. Activity #6

Let's market our product.

Have you considered packaging our product before putting it on the market? Plastic bags provide an attractive container for some items. Will the package have advertising on it?

Activity #6

Refer to selling a service, such as Dick and Dan--market research.

Some marketing methods which we might consider are:

a. Selling directly to the customer.

b. Selling the entire lot to an organization which will do the selling.

c. Selling to a class for use in the class.

d. Selling the entire lot to a group such as a Boy Scout troop. This could apply to a product like the tent stake.

e. Selling only to members of the class.

On the basis of information gained from our market research, proceed to market our product. Be sure to keep an accurate record of the number sold and the money collected.

7. Activity #7

Did we make a profit?

Activity #7

a. Determine the total cost of producing and marketing our product. Include costs for labor, all supplies, materials, and services which had to be purchased.

b. Determine the total amount received from all sales of the product. Do not include any which were given away as samples or for public relations; this is an expense.

c. The difference between the costs and the money received from sales represents profit or loss.

d. Did we make a profit? How much?

C. Conclusion

Teacher:

1. (All students are to make a list of all the activities that were a part of the enterprise which was just concluded.)

2. (Get out the lists of questions and statements which were recorded during activities one and two. If necessary, reference can be made to the lists in the Instructor's Guide for these two lessons.)

3. (Use a brain-storming technique to get the students to categorize all the activities, statements, and questions which have occurred during this lesson. With some guidance and the substituting of terms, the class should arrive at the thirteen concept areas of American industry.)

See pages 33-38 in Student Booklet #1

4. (Emphasize that these thirteen concepts represent the basic parts of an enterprise and that knowledge of these thirteen concepts provide a basic understanding of industry. Also, attempt to bring out the attributes of our definition of American industry. Examples:)

   a. Institution in our society

   b. Applies knowledge

   c. Uses resources (human and natural)

   d. Produces goods and services

   e. Needs of man

   f. Profit

5. (Attempt to show the students how the thirteen concepts do not have clear cut limits and that each concept seems to depend on and interrelate with the other concepts. Interrelationship--having a close connection with one another.)

   a. In determining cost of product we interrelate materials, finance, production and processes.

   b. In planning for production we interrelate production and processes.

   c. (These are obvious interrelationships, try to make some that are not so obvious.)

6. (During the rest of the course, we will attempt to study each of these concepts to a greater extent and also put them together again in a larger student enterprise.)

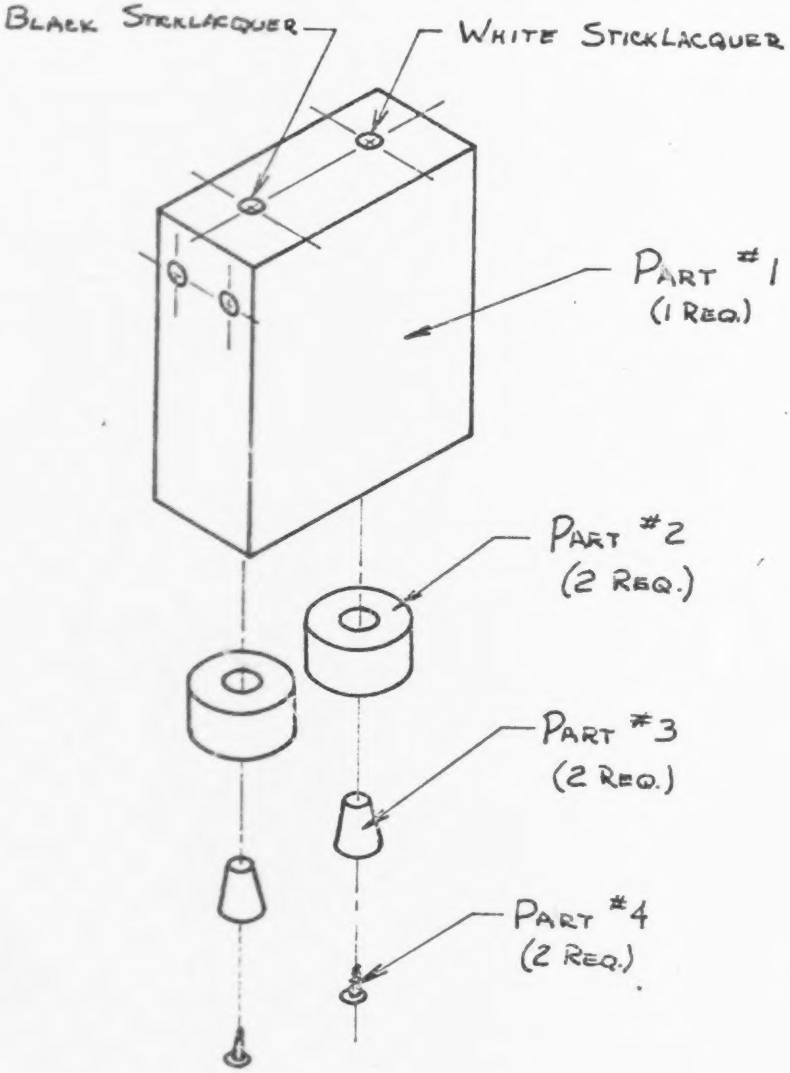
7. (An overhead transparency or a ditto copy of the conceptual structure of American industry could be shown to the students or given to them for their notebook. A description of the conceptual structure should make it possible for the student to visualize the environment and basic parts of (concepts) American industry.)

V. Evaluation

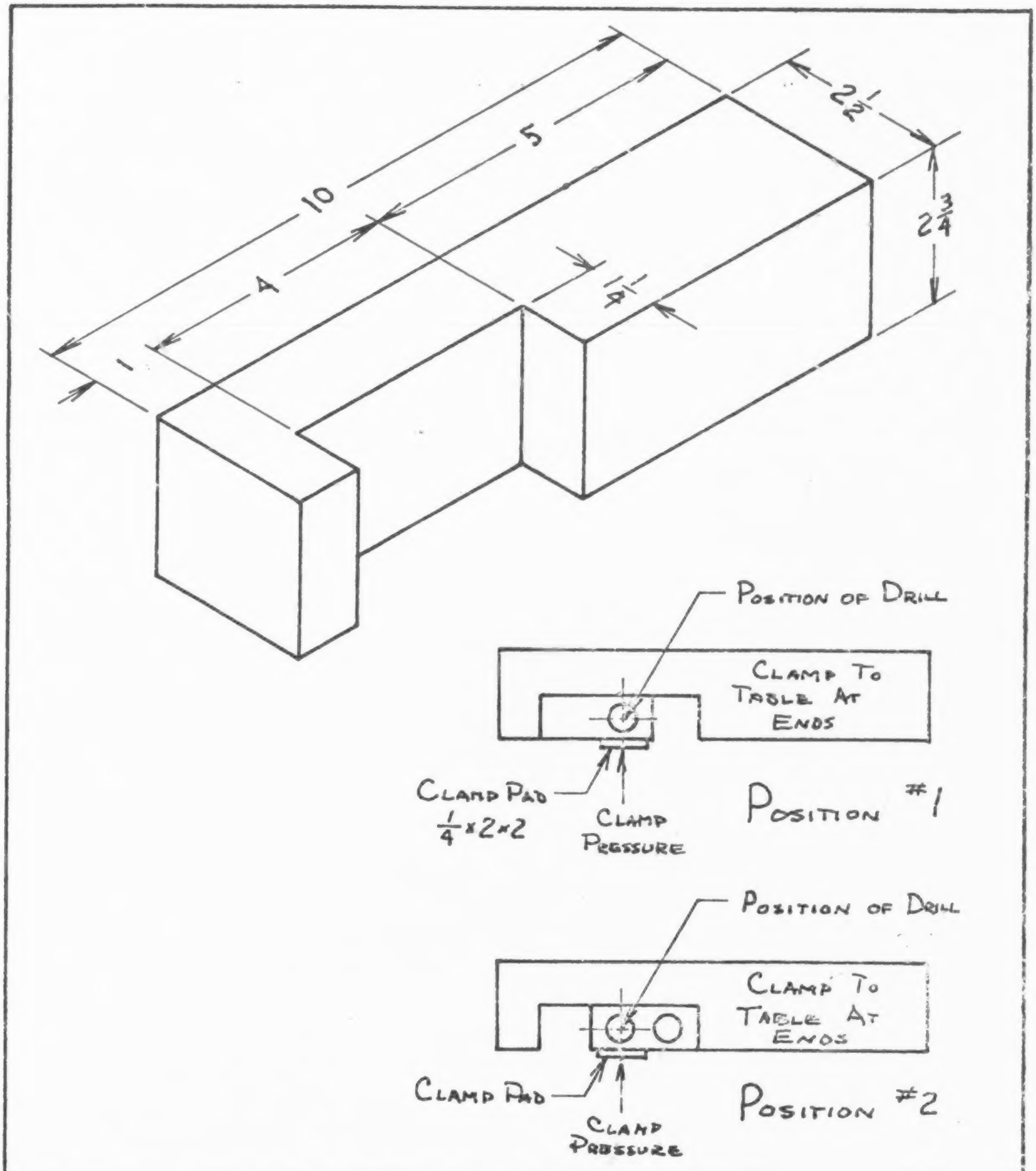
(See evaluation items at the end of this unit.)

LEVEL I - American Industry
UNIT I - Industry Today
Lesson 4 - The Basic Parts of Industry
Student Activity Assignment Sheet #1

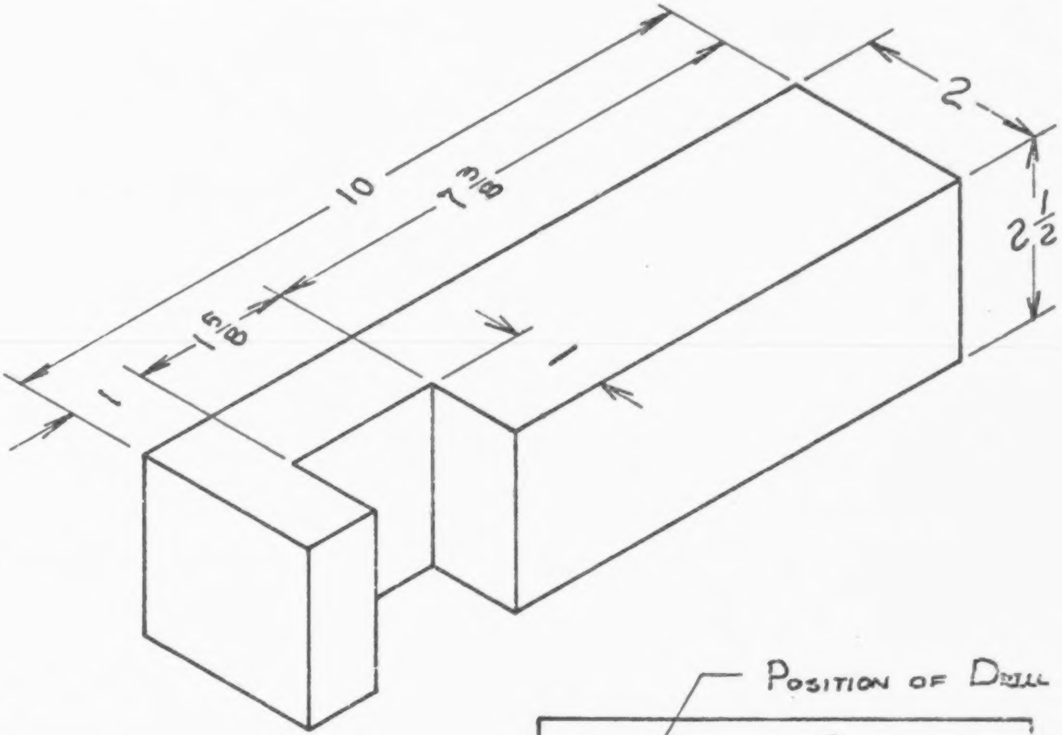
1|2

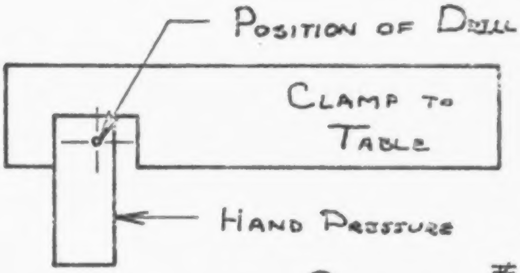


Title: Salt and Pepper Shaker	Serial No.	Sheet 1 Of 10
Company:	Model No.	
Date:	Part No.	

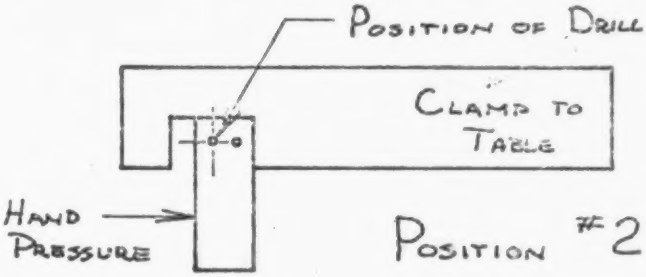


Title: Drill Fixture (Part 1 Cavity)	**Serial No.**	**Sheet** 3 **Of** 10
Company:	**Model No.**	
Date:	**Part No.**	





Position #1

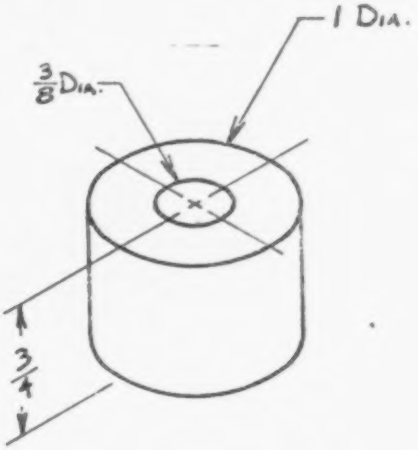


Position #2

Title: Drilling Fixture (Part 1 S&P Holes; Identification Holes)	Serial No.	Sheet 4 Of 10
Company:	Model No.	
Date:	Part No.	

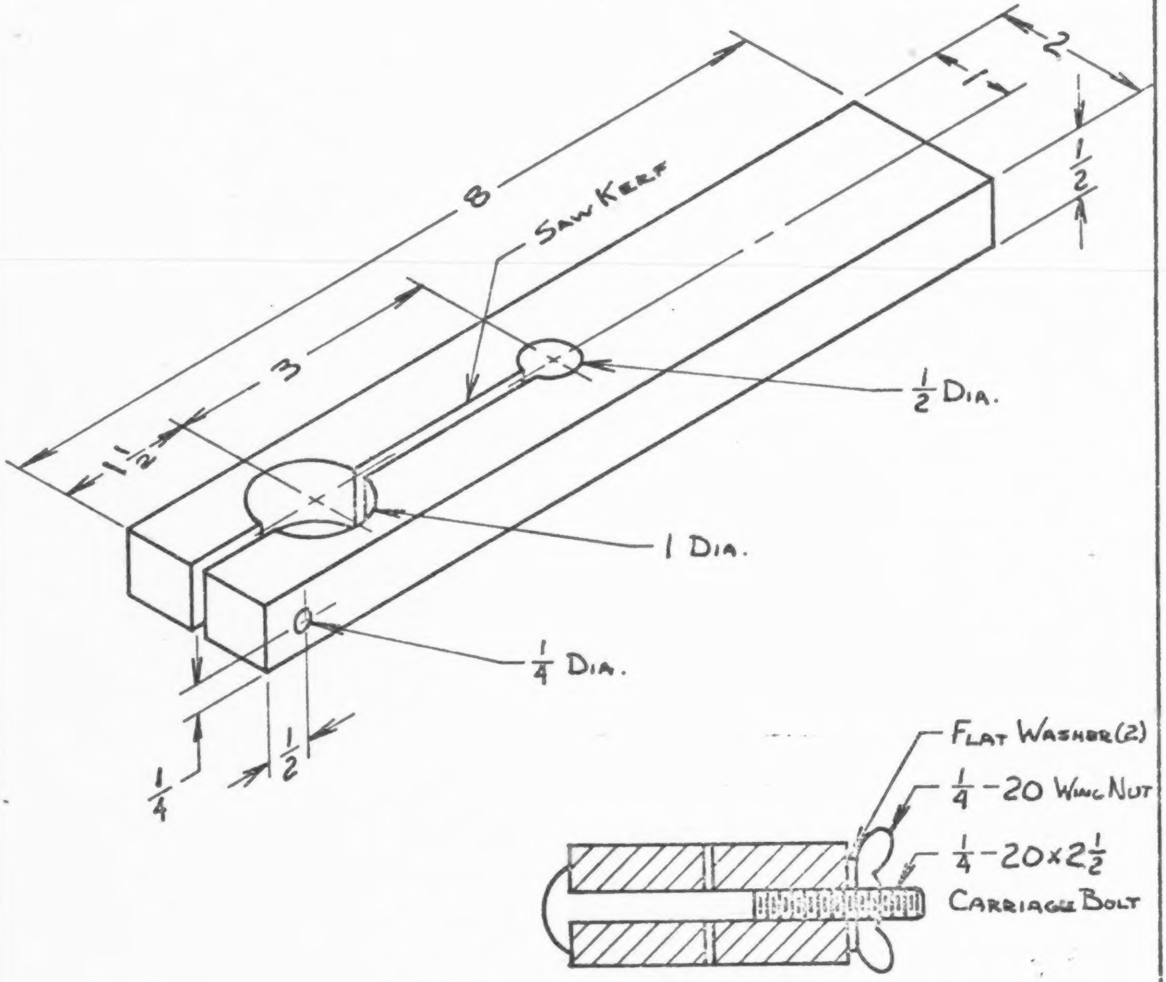
PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Cut to Length 3/4	B. Saw				
2	Drill Hole 3/8	Drill Press				
3	Sand One End	B. Sander				
4	Assembly					
5						
6						
7						
8						
9						
10						
11						
12						

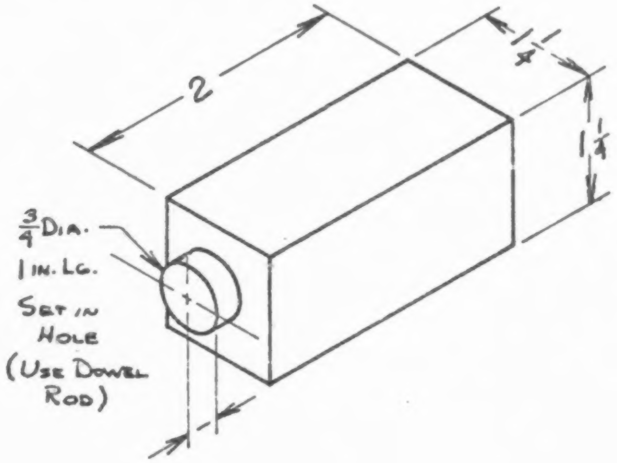


Serial No.	Sheet 5 Of 10
Model No.	Part: 2
Model Name: Salt and Pepper Shaker	Part Name: Hole Reducer

No. Needed: No. Started: Rejects:



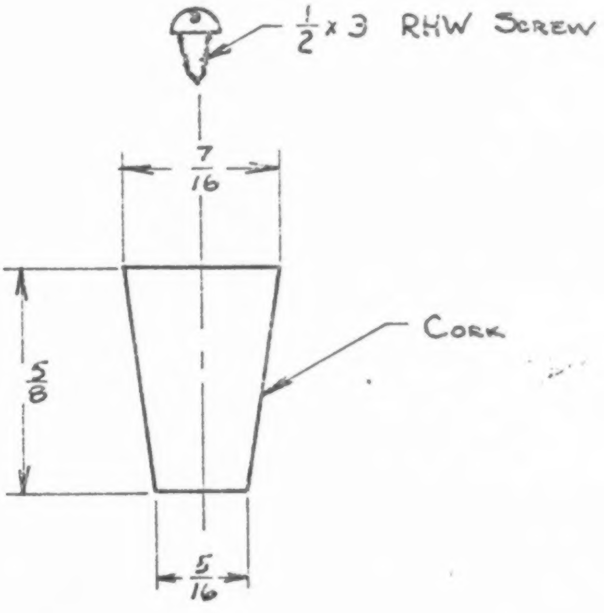
Title: Drilling Clamp (Part 2)	Serial No.	Sheet 6 Of 10
Company:	Model No.	
Date:	Part No.	



Title: Assembly Fixture	Serial No.	Sheet 7 Of 10
Company:	Model No.	
Date:	Part No.	

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Turn Screw in Cork	Hand				
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						



Serial No.	Sheet 6 Of 10
Model No.	Part: 3 and 4
Model Name: Salt and Pepper Shaker	Part Name: Cork and Screw

No. Needed: No. Started: Rejected:

PRODUCTION ORDER

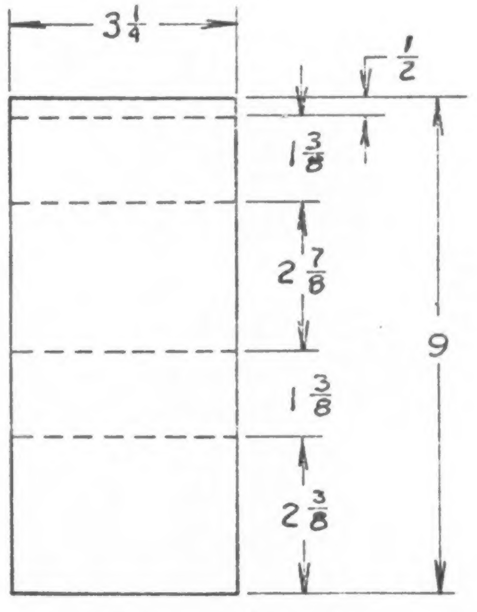
	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Insert Hole Reducer in Body	Hand				
2	Sand Bottom	D. Sander				
3	Finish Sand	Hand				
4	Finish	Hand				
5	Assemble Cork & Screw	Hand				
6	Package					
7						
8						
9						
10						
11						
12						

Serial No.	Sheet 9 Of 10
Model No.	Part:
Model Name: Salt and Pepper Shaker	Part Name: Processes After Assembly

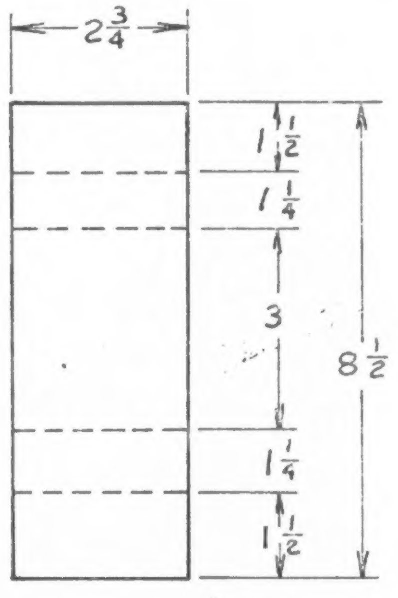
No. Needed: No. Started: Rejects:

PRODUCTION ORDER

	Operation	Machine	Worker			
1	See Corn Shower Details for Steps of Procedures,					
2	Scoring, Fixture Design and Assembly Techniques.					
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						



SHELL (P-1)



LINER (P-2)

Serial No.

Sheet 10 Of 10

Model No.

Part: P-1 and P-2

Model Name: Salt and Pepper Shaker Pkg.

Part Name: Package Liner and Shell

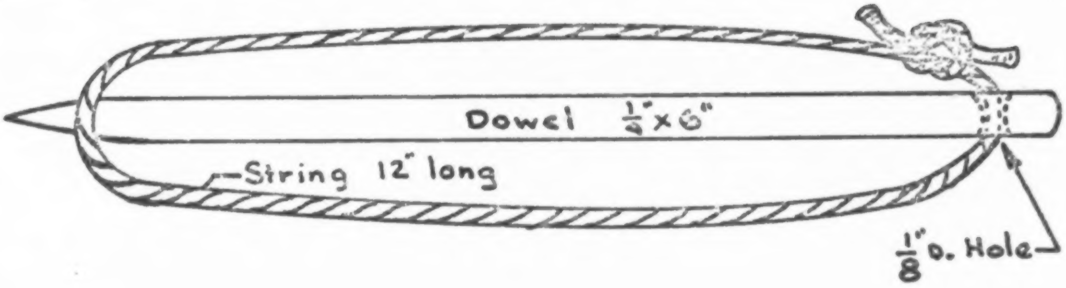
No. Needed:

No. Started:

Rejects:

LEVEL I - American Industry
UNIT I - Industry Today
Lesson 4 - The Basic Parts of Industry
Student Activity Assignment Sheet #2

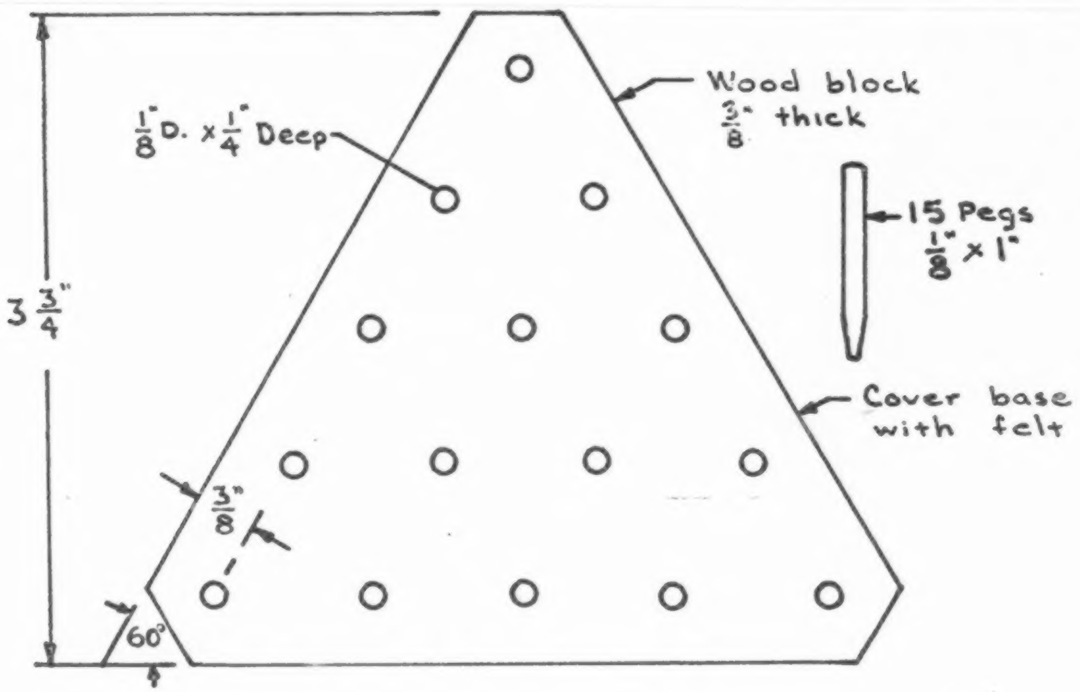
LAPEL NEEDLE PUZZLE



Place the string loop over a buttonhole as in a sweater, shirt or lapel and pull the buttonhole through the loop until the point of the needle can be pushed through the hole. The object is to remove the needle.

LEVEL I - American Industry
UNIT I - Industry Today
Lesson 4 - The Basic Parts of Industry
Student Activity Assignment Sheet #3

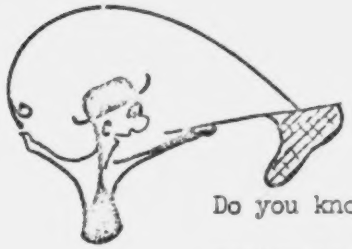
PEG PUZZLE



Place pegs in all except one corner hole. The object is to jump and remove pegs one at a time until only one of them is left. Jump only along the lines.

LEVEL I - American Industry
UNIT I - Industry Today
Lesson 4 - The Basic Parts of Industry
Student Activity Assignment Sheet #4

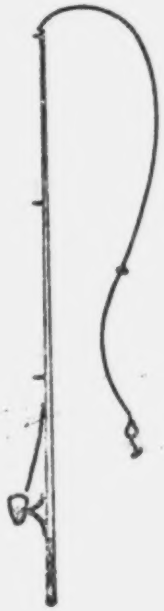
SPINNER



Do you know what makes America the mightiest industrial nation in the world? Well, of course, there are many things involved. But, if you have read your student booklet carefully you know that modern productivity provides us with conveniences far beyond our basic needs.

Just what does this modern productivity mean? How did it develop? We are going to discover for ourselves by making a simple fishing lure.

Let's try two methods of making a lure. The first attempt will be with an assembly line. Each of us will put one piece on the lure as it passes by. The second attempt will be individualized, with each of us assembling a spinner by ourselves.

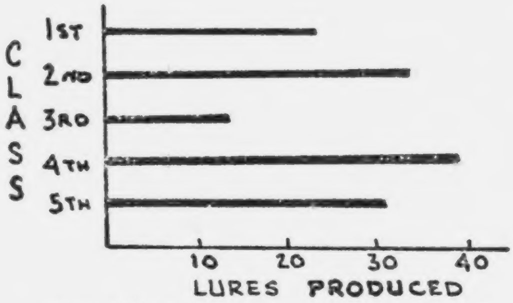


a. Which methods do you think will be faster?

b. Why do you think it will be faster?

ARE YOU READY TO BREAK A RECORD?

We will assemble the lures on an assembly line first. We are going to compete against other classes, so let's see how many we can make in twelve minutes. Operating an assembly line takes a good deal of planning and organization. Your instructor has already planned your production line, so he will get you in position and demonstrate your jobs, and then go, go, go!



PRODUCTION CHART

HOW DID YOU DO?

a. How many did your group make?

b. How does this compare to the other groups? (Try making a simple chart to show this.)

c. What could have been done to speed up production?

d. Do you think you will be able to produce faster by having each person put lures together by himself? Why?

LET'S TRY IT!

Each of us will assemble a spinner by himself. We will see how many we can do in twelve minutes. Read the instructions carefully so you can make a good showing.

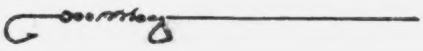
FIRST: Cut the leader to 12" length.

SECOND: Tie leader to hook (hooks are sharp to catch fish--not fingers--so handle them lightly).

THIRD: Thread on two beads.

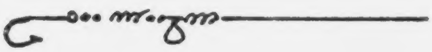
FOURTH: Thread on a spinner spring.

FIFTH: Thread on two beads.

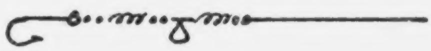


SIXTH: Hook clevis to spinner blade and thread leader through clevis.

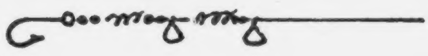
SEVENTH: Thread on two beads.



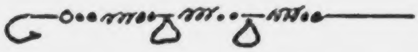
EIGHTH: Thread on a spinner spring.



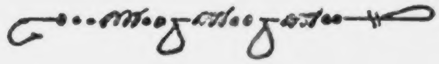
NINTH: Thread on two beads.



TENTH: Hook clevis to spinner blade and thread leader through clevis. (If one spinner blade will catch an eight pound walleye--think what two blades will do!)



ELEVENTH: Thread on two beads.



TWELFTH: Tie loop in end.

HOW DID YOU DO THIS TIME?

Take a real good look at the lures that you produced.

a. Are all knots tied correctly?

b. Were all parts placed in their proper order?

c. Do the spinners rotate freely?

d. You made ______ lures in twelve minutes with an assembly line. How many did the class make in twelve minutes assembling them individually?

e. Which is the better method?

f. Why do you think this is true?

SPINNER ACTIVITY

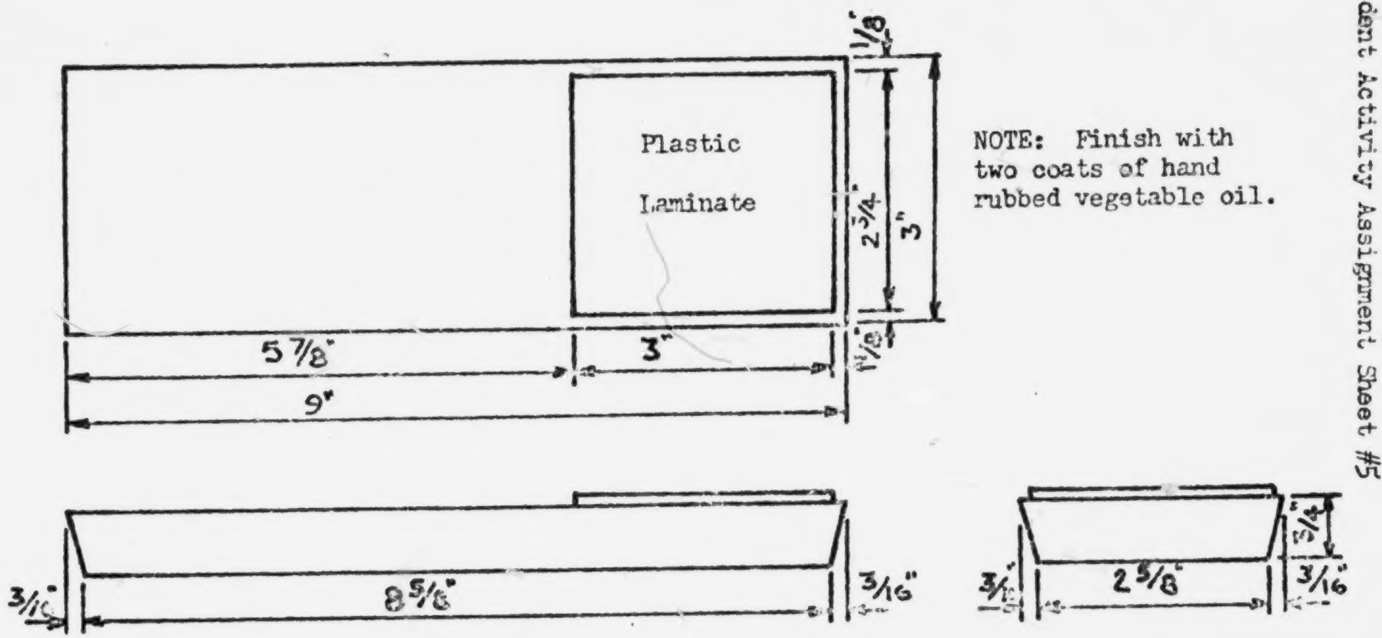
Table below figured on basis of 50 spinners.

	NUMBER	QUANTITY	STYLE	SIZE	NAME	WEIGHT
1.	AD6E2	100	1	2	Clevises	4 oz.
2.	AD7A1	100	1	.046	Spinner Springs	4 oz.
3.	AG8A4	500	1	2	Beads	4 oz.
4.	AD4A6K	100	HN	1	Blades	8 oz.
5.	707	50	10		English Bait Hook	2 oz.
6.	LE3A4	100 yd.	OX	.011	Leader	3 oz.

Level I - American Industry
Unit I - Industry Today
Lesson 4 - The Basic Parts of Industry
Student Activity Assignment Sheet #5

CHEESE BOARD

Scale: ½



NOTE: Finish with two coats of hand rubbed vegetable oil.

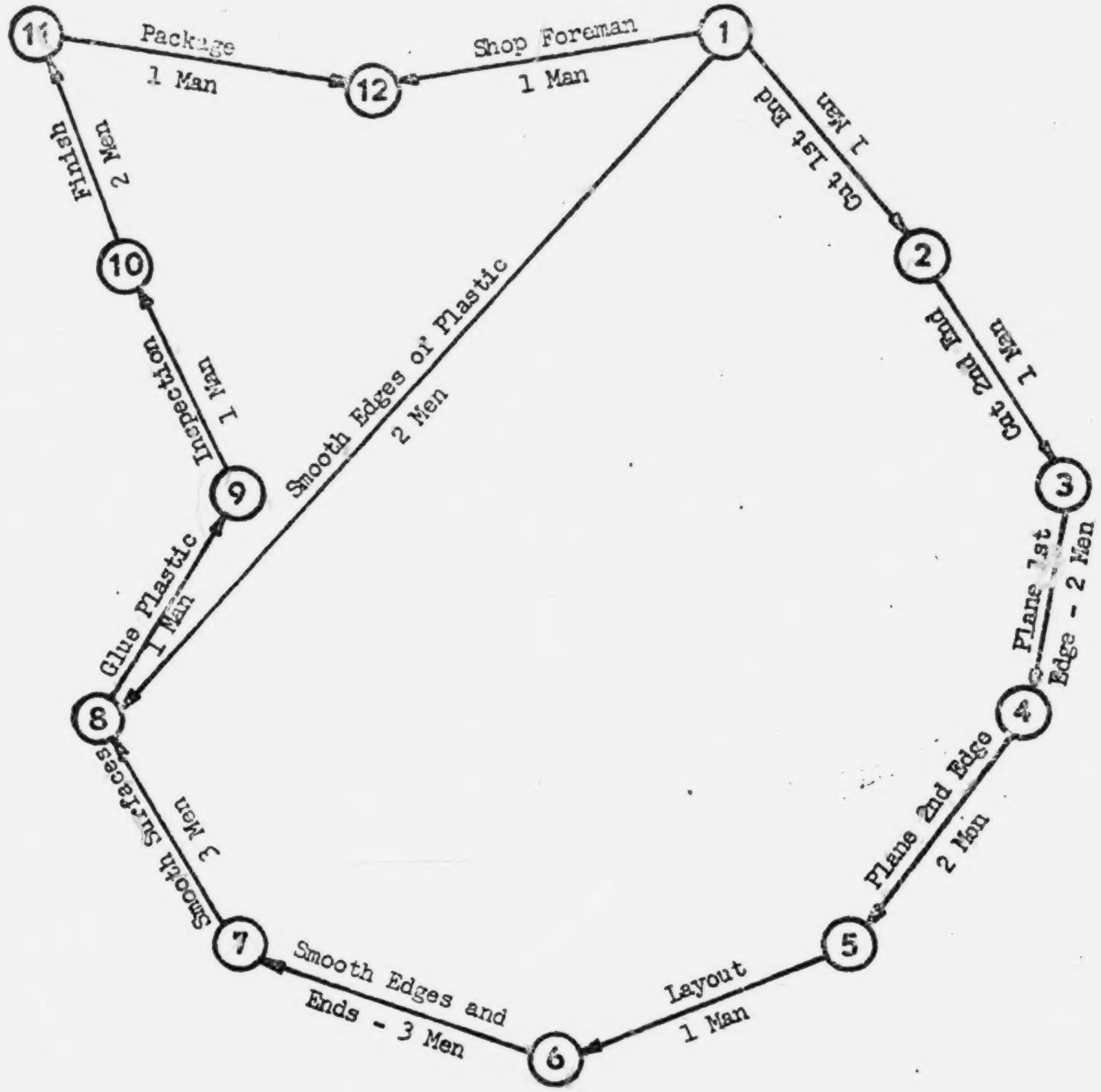
Specifications:

Tolerance for length and width	1/8"
Tolerance for thickness	1/16"
Tolerance for size of plastic	1/32"
Tolerance for placement of plastic	1/32"

Work Drawing

NETWORK ANALYSIS

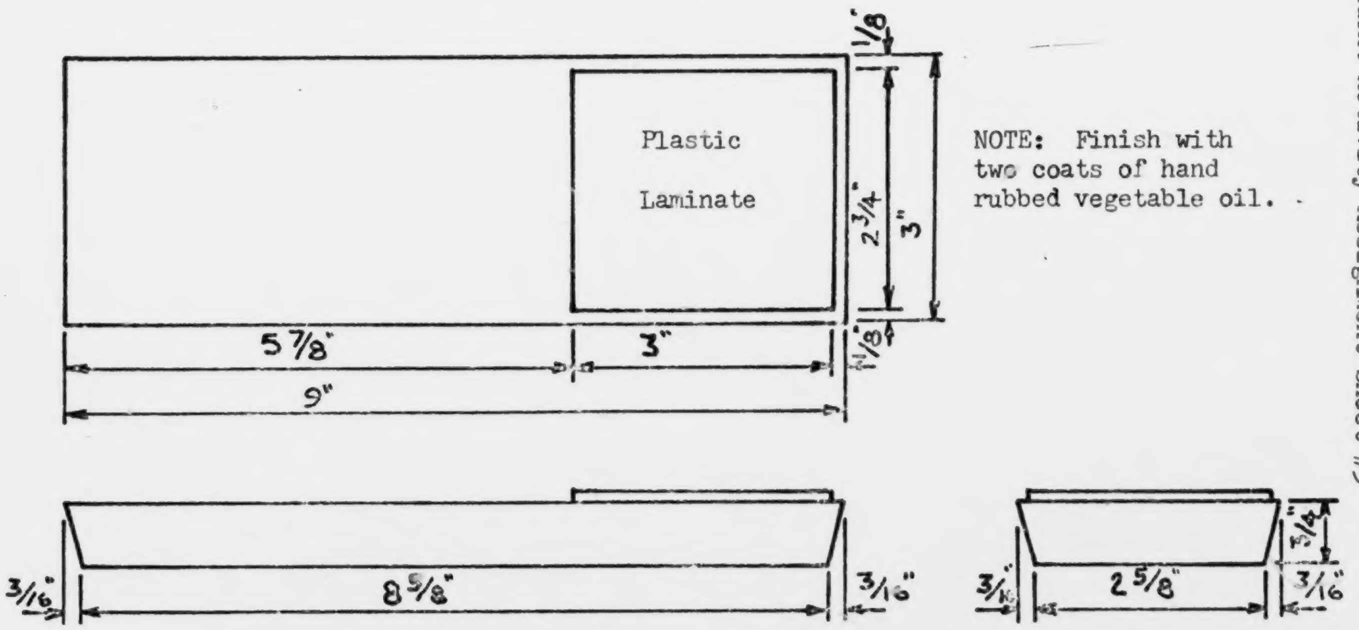
Cheese Board



Level I - American Industry
Unit I - Industry Today
Lesson 4 - The Basic Parts of Industry
Student Activity Assignment Sheet #5

CHEESE BOARD

Scale: ½



NOTE: Finish with two coats of hand rubbed vegetable oil.

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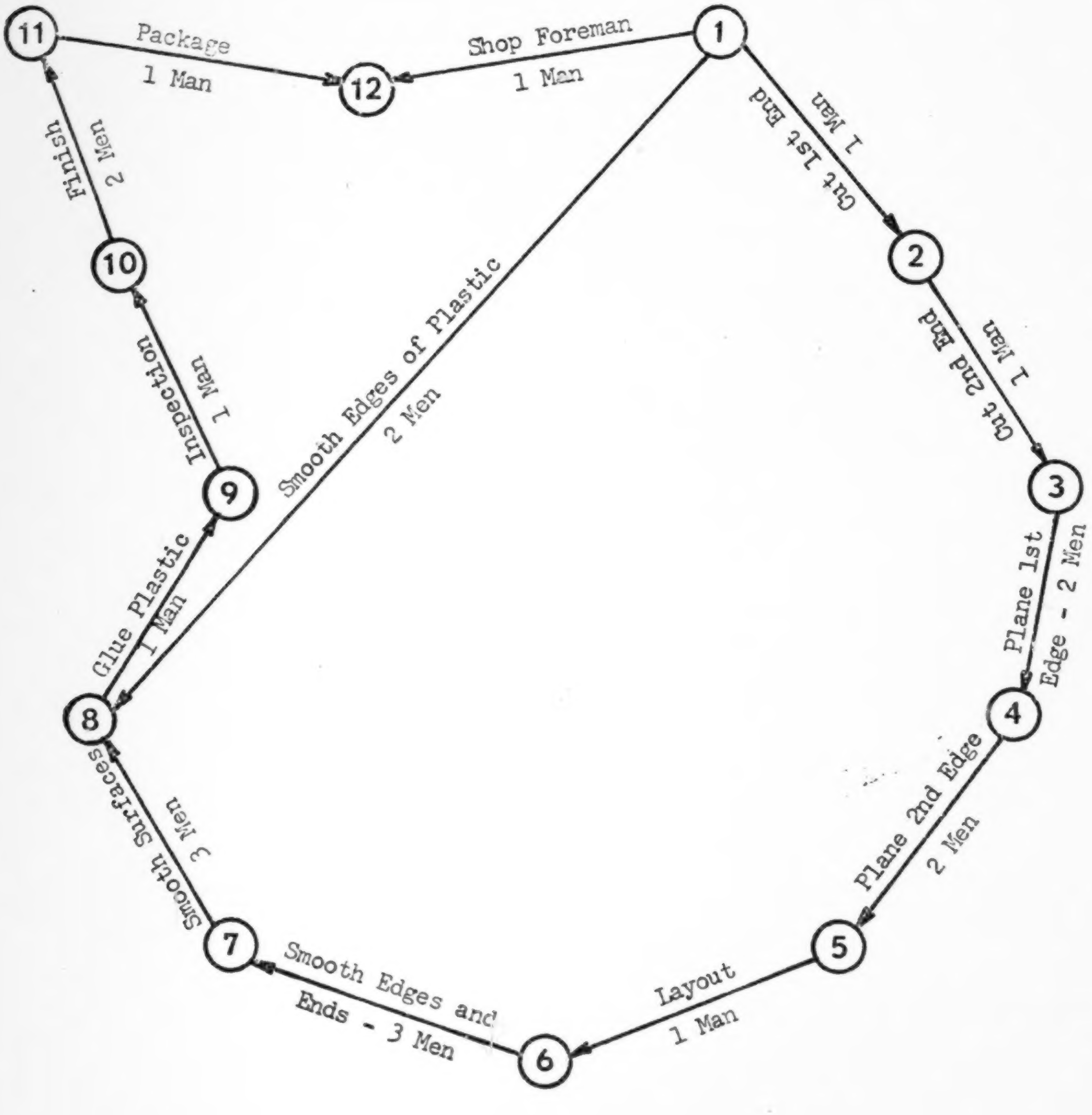
Work Drawing

NETWORK ANALYSIS

Cheese Board



PRODUCTION

Cheese Board

Refer to Network Analysis.

1-2 Cut First End (1 Man): Using the cut off jig labeled A-A, one man with a back saw will cut off the first end which will also cut the desired angle. After completion of this operation, worker 1-2 will remove the stock from the jig and place it in position for the next worker to perform his operation.

2-3 Cut Second End (1 Man): Using the cut off jig labeled B-B, one man with a back saw will cut off the second end which will also cut the desired angle as well as cut the stock to finished length. After completion of this operation, worker 2-3 will remove the stock from the jig and place it in position for the next worker to perform his operation. Worker 2-3 is responsible to have every fifth piece checked by the shop foreman to maintain a standard of work which is acceptable according to the specifications.

3-4 Plane First Edge (2 Men): Using the edge planing jigs labeled C-C, two men using smooth or jack planes will plane the first edge which will form the angle on the first edge. After completion of this operation, workers 3-4 will remove the stock from the jig and place it in position for the next worker to perform his operation.

4-5 Plane Second Edge (2 Men): Using the edge planing jigs labeled D-D, two men using smooth or jack planes will plane the second edge which will form the angle on the second edge as well as cut the stock to finished width. Worker 4-5 is responsible to have every fifth piece checked by the shop foreman to maintain a standard of work which is acceptable according to the specifications.

5-6 Lay Out (1 Man): Using template E-E, one man will lay out the area where the plastic is to be cemented. For location of the plastic, refer to the working drawings. This layout is to be done lightly with a soft pencil. Upon completion of this operation, worker 5-6 will remove the template and place the stock in position for the next operation.

6-7 Smooth Edges and Ends (3 Men): Using abrasive paper and sanding blocks, workers 6-7 will remove all marks resulting from sawing or planing from the edges and ends. When these marks have been removed, the workers should use a finer grit abrasive and lightly smooth the edges and ends. Upon completion of this operation, workers 6-7 will place the stock in position for the next operation.

7-8 Smooth Surfaces (3 Men): Using abrasive paper and sanding blocks, workers 7-8 will smooth both the top and bottom surfaces of stock so they are ready for finishing. Caution: Some care should be exercised to prevent smoothing the area where the plastic is to be cemented. This will help the bond to be stronger. Upon completion of this operation, workers 7-8 will place the stock in position for the next operation.

1-8 Smooth Edges of Plastic (2 Men): While the operations 1 through 8 are taking place, two workers using a single cut file, with which they will draw file the edges of the plastic to remove saw marks and wet or dry abrasive paper 360 to 400 grit to polish the edges. It is essential to the efficient operation of this production line that the edges of plastic are smoothed at the time operation 7-8 is completed.

8-9 Glue Plastic (1 Man): Using a contact cement which is suitable for the type of plastic selected and following manufacturer's directions, the worker will apply the cement. Using template F-F, the worker will place the glued plastic in position and hold it in place according to manufacturer's directions. Upon completion of this operation, the stock will be placed in position for the next operation.

9-10 Inspection (1 Man): At this point, each piece off the line will be inspected to determine if the work is meeting the specifications. Those pieces which meet the specifications will be placed in position for the next operation while those which do not will be rejected.

10-11 Finish (2 Men): Using vegetable oil which may be applied by rubbing either with the bare hand or a small cloth each board will receive two coats of oil on all wood surfaces. Upon completion of this operation, all pieces will be set aside where the air can circulate about the pieces.

11-12 Package (1 Man): Using a package which meets the instructor's approval, the product will be placed in a package and stored for shipment.

1-12 Shop Foreman (1 Man): He is responsible for the entire operation and is second in command only to the instructor. All workers are to route comments to the instructor through the foreman.

TOOLS LIST

Cheese Board

Tool	Quantity
Back Saws	2
Smooth or Black Planes	4
Soft Pencil	1
Sanding Blocks	5
Single Cut Files	2
12" Scales	3

Expendables

Supply of Abrasive Paper

Supply of Wet-Dry Abrasive Paper

Contact Cement

Vegetable Oil

Packages

MATERIALS LIST

Cheese Board

Wood may be any of the following:

Walnut

Cherry

Birch

Maple

Gum

Plastics may either be formica, panelyte, or other similar material.

Wood: 1 piece 3/4" x 3" x 9" squared.

Plastic: 1 piece 2 3/4" x 3".

PRECAUTIONS

Cheese Board

The following are areas where trouble is foreseen:

1. At the outset there will not be materials which have been processed so this will result in a good share of the workers standing idle at the start of the production run.

2. With only one man at the cut off stations, there may be a lag at this point.

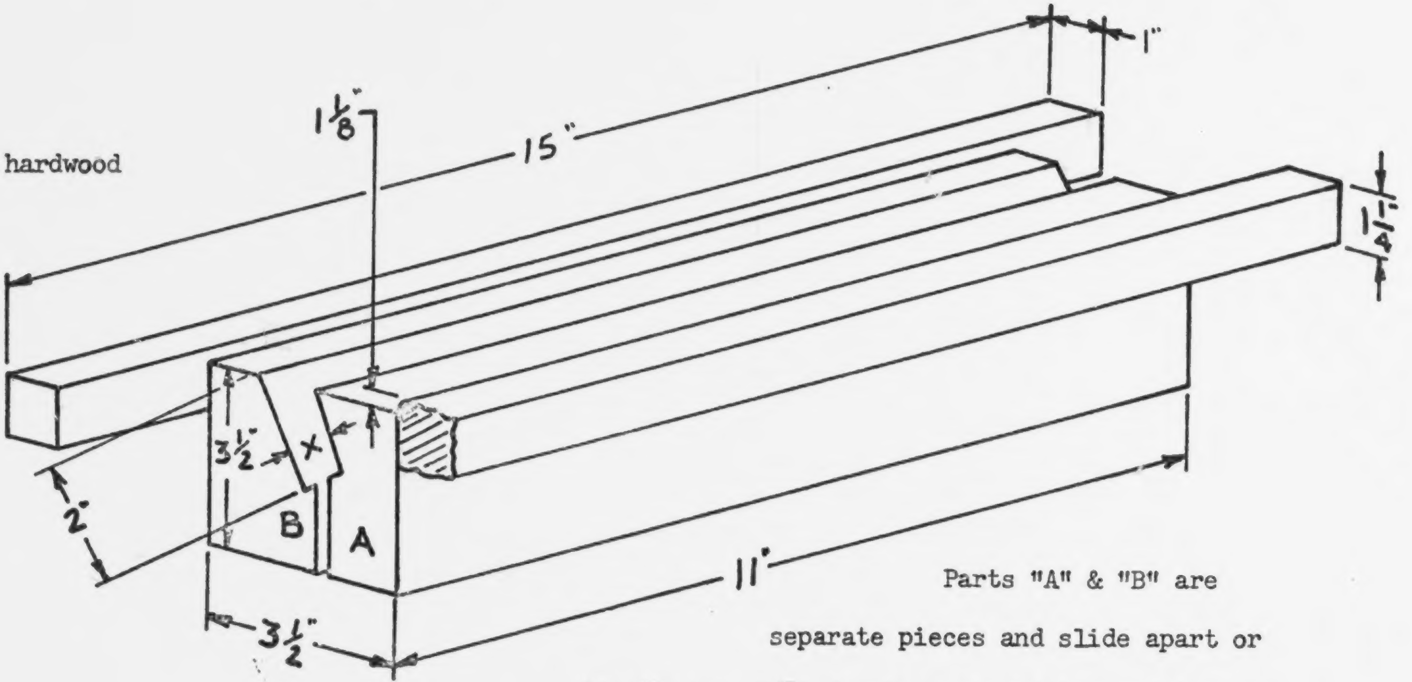
3. The worker on 5-6 operation may not have enough work to keep him busy.

4. Most contact cements require approximately one half hour to set up before the pieces may be joined. This will cause a delay prior to finishing.

Cheese Board

The fixture illustrated below is used for sanding and planing the beveled edges of the cheese board. Space "x" to be 1/8" greater than thickness of stock to be used.

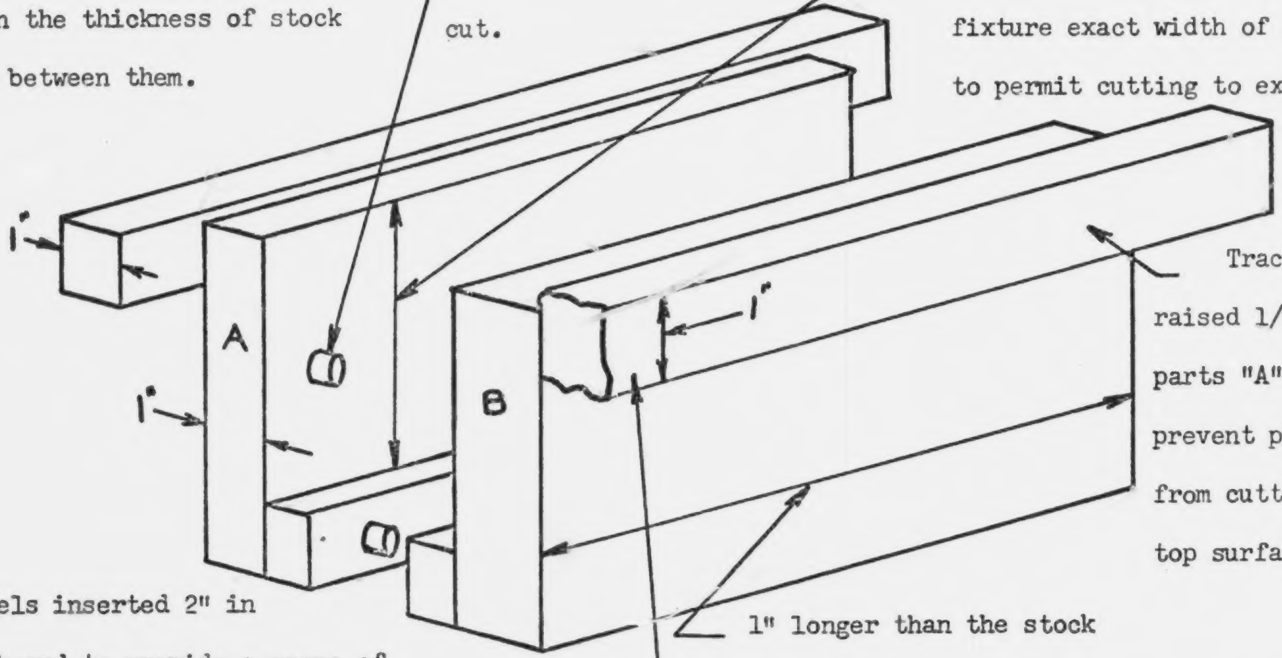
Use hardwood



Parts "A" & "B" are separate pieces and slide apart or together on 3/8" dowels anchored in one piece.

A fixture for cutting a beveled edge and later sanding.

Cheese Board



The maximum space between parts "A" & "B" must be no more than 1/8" less than the thickness of stock inserted between them.

A dowel to stop the forward movement of stock being cut.

1/8" over exact width of stock to permit forming of the working edge and on second fixture exact width of stock to permit cutting to exact width.

Tracks or runners raised 1/16" above parts "A" & "B" to prevent plane blade from cutting into their top surface.

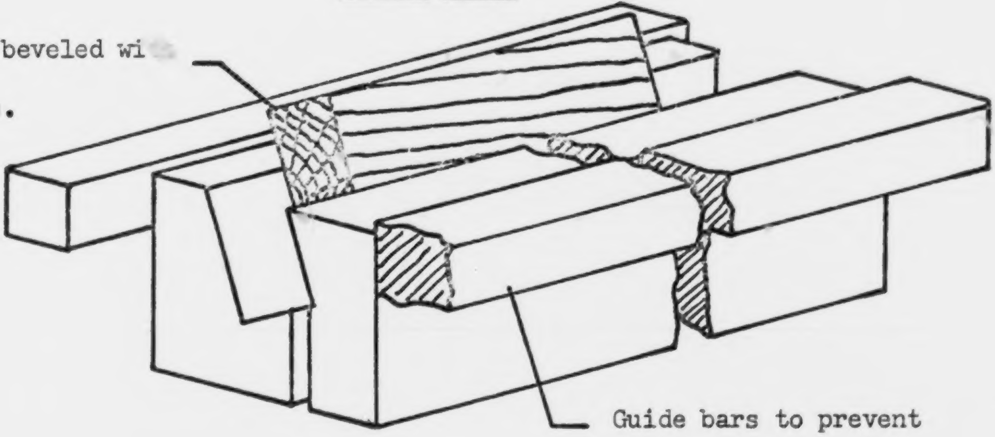
Dowels inserted 2" in from each end to provide a means of sliding the two separate jaws of the jig together for clamping the stock.

1" longer than the stock inserted between them.

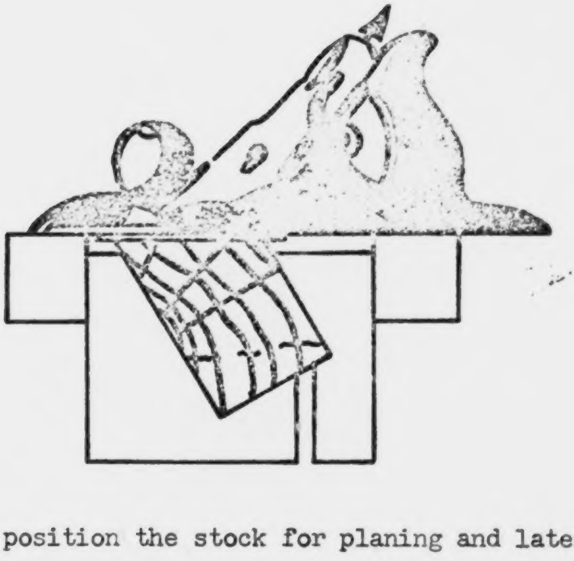
Must be a minimum of 2" beyond each end of parts "A" & "B".

A fixture for cutting stock to width or making a working edge.

Cheese Board



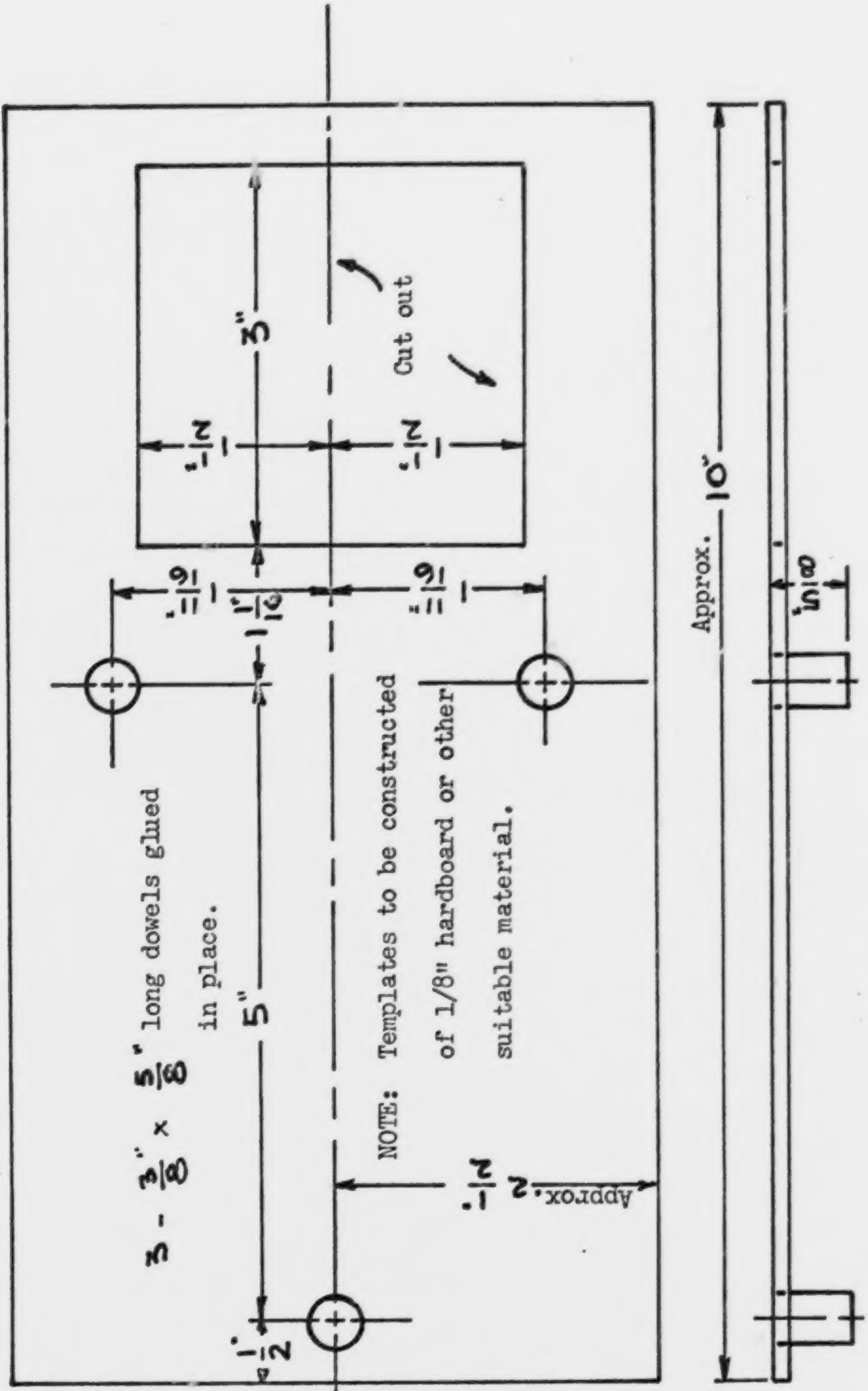
This fixture and stock can be
clamped in an ordinary woodworking vise.



A fixture used to position the stock for planing and later sanding.

Cheese Board

Scale: 3/4" = 1"



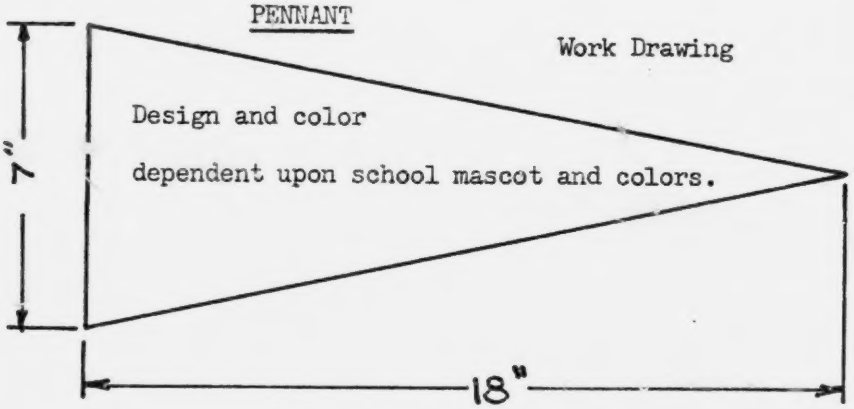
3 - 3/8" × 5/8" long dowels glued in place.

NOTE: Templates to be constructed of 1/8" hardboard or other suitable material.

Cement Template F-F

Lay Out Template E-E

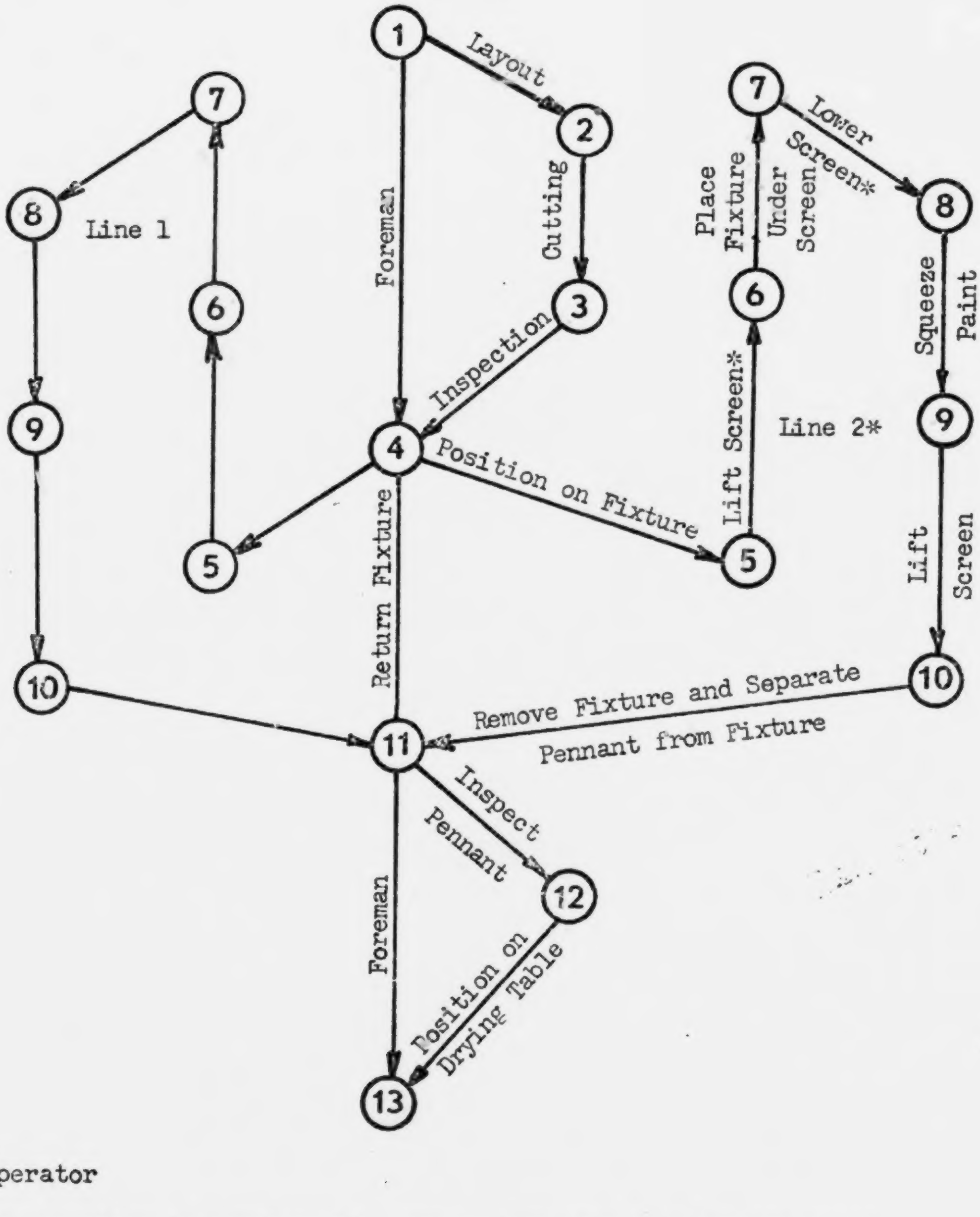
LEVEL I - American Industry
UNIT I - Industry Today
Lesson 4 - The Basic Parts of Industry
Student Activity Assignment Sheet #6



[Picture of sample on
final copy only.]

NETWORK ANALYSIS

Pennant



* One operator

1. Each operation is performed by one worker unless otherwise noted.
2. One supervisor is in charge of the overall production activity.
3. One foreman supervises each line.

10-11 One worker will remove a fixture with stock on it from the screen each time the top is lifted and separate the pennant from the fixture.

11-4 One worker will return fixtures from the out end of the screen to the in end.

11-12 One worker will inspect finished pennants.

12-13 Two workers will position wet pennants on drying table and store dry pennants.

11-13 One foreman will supervise the last two operations.

a. One foreman will supervise line one and one will supervise line two.

b. One production supervisor will supervise the overall production activity.

BILL OF MATERIAL

Pennant

1. Felt: Amount to be determined by the size of the pennant wanted and the quality needed.
2. Paint: School color.
3. Film: The size of the pennant.

Equipment

1. Two frames with silk screen.
2. Two squeegees.
3. Templates.
4. Fixtures (see Jigs and Fixtures).

Printing

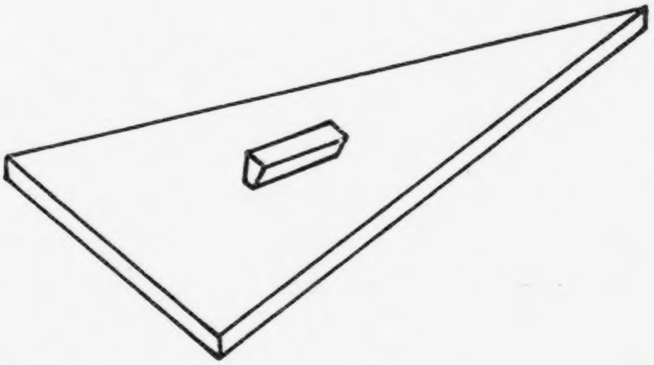
See a printing catalog for details on ordering. A catalog is available from the following address:

Screen Process Colors, Equipment, Supplies
Catalog No. 30
The Naz-Dar Company
461 Milwaukee Avenue
Chicago, Illinois

JIGS AND FIXTURES

Pennant

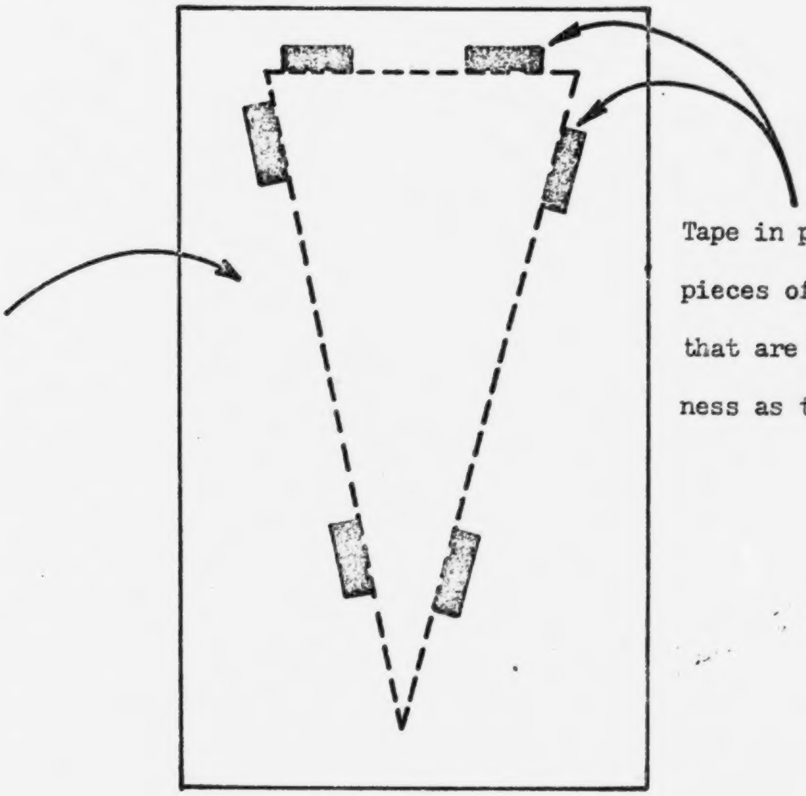
Template for layout of stock and inspecting stock for size. Make three identical. Make out of hardboard or plywood.



JIGS AND FIXTURES

Pennant

Fixture used to hold stock in position for printing operation. Make four for each line.



Cardboard
or hardboard
backing.

Tape in position
pieces of cardboard
that are the same thickness as the felt.

REFERENCES

Pennant

1. Kosloff, Albert, Screen Process Printing. Cincinnati, Ohio: The Signs of the Times Publishing Company, 1950.

2. Kosloff, Albert, The Art and Craft of Screen Process Printing. Milwaukee, Wisconsin: The Bruce Publishing Company, 1960.

3. Strauss, Victor, The Silk Screen Primer. Washington, D. C.: Education Council of the Graphic Arts Industry, Inc., 1953.

4. Vocational Development Committee of the Screen Process Printing Association, Screen Process Printing. Chicago, Illinois: Screen Process Printing Association, International, 1954.

[illegible]
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor_______________________ Date_______________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________

6. Which activity did you use?____________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain____________________

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ______________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ______________________________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ______________________________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ______________________________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______________________________

____

I - I - T1 (1 period)

DIRECTIONS TO THE INSTRUCTOR FOR USING THE UNIT I TEST

I. Do not review this test until you are ready to use it. This will prevent you from accidentally giving any of the answers to your students. If this happens, you will be unable to determine if your instruction has developed the desired understandings.

II. There are 38 questions in this test for evaluating your students' knowledges. You may want to supplement the test with questions of your own. An answer sheet is also provided for your convenience.

III. Part II of the test asks for student opinions related to the activities involved in Unit I. You may want to review the responses to these before you forward the answer sheets to Orville Nelson at the Project.

IV. After you have recorded the test data, send the completed answer sheets to the Project.

V. Directions for administering.

   A. Reproduce the test and answer sheet.

   B. Distribute the answer sheet.

      1. Have students fill in the information requested on the answer sheet.

      2. Show them how to use the answer sheet.

   C. Distribute the test.

      1. Review the directions on the test with your students.

      2. Explain that there are two parts to the test.

      3. Answer any questions they might have.

   D. Supervise the testing.

      1. See that your students are marking their answers correctly.

      2. Be sure they understand how to respond to the items in Part II.

   E. Collect the tests and answer sheets.

   F. If your students did not have time to complete Part II, have them finish it during the next period they come to class. Do not have them go back to Part I.

   G. Score answer sheets.

   H. Review results with your students.

LEVEL I AMERICAN INDUSTRY TEST: UNIT I

Directions: Mark your answers on the answer sheet. Fill out the information requested on the answer sheet. There are two parts to this test. Complete both parts. There is only one correct response to each question. Do not mark on your test.

PART I: True-False and Multiple Choice Items

1-6 True and False. If a statement is true, darken the correct space under T on your answer sheet. If a statement is false, darken the space under F on your answer sheet.

1. A natural resource used in making your home is iron ore.
2. An enterprise can operate without being concerned about selling its products.
3. Industry sells only goods.
4. Businesses are alike in many ways.
5. Natural resources usually require little processing before they will satisfy our needs.
6. Human resources are used to turn natural resources into goods and services.

7-16 Cluster True and False. Below are several organizations found in our society. If an organization is an industry or part of an industry, mark true on your answer sheet. If it is not a part of industry, mark false on your answer sheet.

7. Local gas station
8. Red Cross
9. Ford Motor Company
10. Local drug store
11. Local churches
12. Local school board
13. Farmers in the area around town
14. Local hospital
15. Local supermarket
16. General Electric

17-38 Multiple Choice. Select the correct answer for each question and darken the space under the letter that identifies your answer on the answer sheet.

17. Which of the following is an example of an influence government has on industry?

    A. Gas war at the local filling stations
    B. Training increases skills of students
    C. People purchase homes
    D. Trucks can travel only 55 miles per hour on our roads

18. Why has man developed skills and knowledge in processing natural resources into products?

    A. To occupy his time
    B. To better satisfy his needs
    C. To make use of materials
    D. To show what he can do

19. Which of the following activities is most important in a successful business?

    A. Producing the product
    B. Designing the product
    C. Selling the product
    D. All three are essential

20. Why did the product you produced sell?

    A. It was cheap
    B. It satisfied a need
    C. It was made in a hurry
    D. It was made by an industry

21. Which of the following is not a natural resource?

    A. Water
    B. Air
    C. Skill
    D. Iron ore

22. Which of the following is not a member of an institution?

    A. General Motors
    B. You
    C. Our school
    D. Dick Tracy

23. Which of the following is a service?

    A. Making a hammer
    B. Producing a ball
    C. Designing a car
    D. Repairing a car

24. Which of the following is a human resource?

    A. Knowledge
    B. General Motors
    C. Water
    D. Hospital

25. Why does food sell?

    A. It is reasonably priced
    B. It is easy to purchase in modern stores
    C. People like to shop
    D. People get hungry

26. How do you determine how many products to produce?

    A. On the basis of the amount of raw materials on hand
    B. On the basis of the number you can make
    C. On the basis of the number you can sell
    D. On the basis of a good guess

27. Which of the following would not be a public interest activity?

    A. Safety laws
    B. Competitive pricing
    C. Air pollution control
    D. Zoning laws

28. Which of the following situations is not a result of the environment of American industry?

    A. People cannot own their own cars
    B. Businesses compete to satisfy consumer needs
    C. People can profit from their skills
    D. Businesses can produce what they want

29. Which of the following is not a part of the environment industry operates in?

    A. Production
    B. Competition
    C. Government
    D. Resources

30. An enterprise's expenses in producing a service are $100. Customers pay a total of $125 for this service. What is the $25?

    A. Surplus
    B. Expense
    C. Interest
    D. Profit

31. What does public interest do?

    A. Changes natural resources into products
    B. Produces a profit for industry
    C. Protects the rights of the majority
    D. Protects the rights of the individual

32. If you had to change trees into a shelter, which of the following would you select?

    A. Knowledge of growing trees
    B. Knowledge of cutting wood
    C. Abundant water power
    D. Ample supply of coal

33. In the years to come, which of the following is most likely to happen?

    A. Our natural resources will increase
    B. Our human resources will decrease
    C. Our skills will increase
    D. Our needs will decrease

34. Why did man develop better farming skills?

    A. To better satisfy his need for food
    B. To make use of modern equipment
    C. To conserve on petroleum products
    D. To keep up with his neighbors

35. Which of the following resources can be replaced as it is used?

    A. Iron ore
    B. Petroleum
    C. Coal
    D. Trees

36. What is one of the human resources needed to make pencils?

    A. Natural rubber for the eraser
    B. Lumber for the body of the pencil
    C. Ability to operate machines
    D. Profit from sales of pencils

37. What is one of the natural resources needed to produce hamburger?

    A. Soil
    B. Lumber
    C. Steel plow shares
    D. Gasoline

38. Which of the following is an enterprise?

    A. The steel producers
    B. The General Electric Corporation
    C. The auto manufacturers
    D. The electronics manufacturers

PART II: UNIT I TEST

Answer the following section. Your responses will have no influence on your grade.

I. What product did you produce in your student enterprise? Student enterprise refers to the activity you used to produce and market the product. (Write your answer on your answer sheet.)

II. Directions: Read the sentences below and mark one of the following responses. If you strongly agree with a sentence, darken the space under SA. If you agree with a sentence, darken the space under A. If you cannot decide whether you agree or disagree, darken the space under U. If you disagree with a sentence, darken the space under D. If you strongly disagree with a sentence, darken the space under SD. There are no "right" or "wrong" responses to these statements. Answer according to your feelings.

Strongly Disagree = SD
Disagree = D
Undecided = U
Agree = A
Strongly Agree = SA

Place your answers in Part II of the answer sheet.

1. I liked the student enterprise activity. SD D U A SA
2. Producing the product is the most important part of a successful business. SD D U A SA
3. I liked the group work involved in the student enterprise. SD D U A SA
4. Making a profit on the products we sold added interest to the activity. SD D U A SA
5. I have learned a lot about industry in class so far. SD D U A SA

I - I - T7

6. I like this class. SD D U A SA

7. Selling the products produced in the student enterprise was interesting. SD D U A SA

8. The student enterprise should be eliminated from this course. SD D U A SA

9. I do not know what an industry is. SD D U A SA

10. Industry is not an important part of our society. SD D U A SA

11. Industry has little influence on me. SD D U A SA

12. I will probably work in industry. SD D U A SA

13. I have a greater appreciation for industry after studying it in this class. SD D U A SA

14. I do not know the difference between an enterprise and an industry. SD D U A SA

15. Other comments: Place them on your answer sheet.

UNIT I TEST
ANSWER SHEET

Name ______________________
School ______________________
Class period ________ Date ________
Teacher ______________________

Directions: Mark your answer by darkening the circle below the letter which identifies your answer.

	A	B	C	D
Example: A is your response.	●	○	○	○

Part I

1-16 True-False

	T	F
1.	○	○
2.	○	○
3.	○	○
4.	○	○
	T	F
5.	○	○
6.	○	○
7.	○	○
8.	○	○
	T	F
9.	○	○
10.	○	○
11.	○	○
12.	○	○
	T	F
13.	○	○
14.	○	○
15.	○	○
16.	○	○

17-38 Multiple Choice

	A	B	C	D
17.	○	○	○	○
18.	○	○	○	○
19.	○	○	○	○
20.	○	○	○	○
	A	B	C	D
21.	○	○	○	○
22.	○	○	○	○
23.	○	○	○	○
24.	○	○	○	○
	A	B	C	D
25.	○	○	○	○
26.	○	○	○	○
27.	○	○	○	○
28.	○	○	○	○
	A	B	C	D
29.	○	○	○	○
30.	○	○	○	○
31.	○	○	○	○
32.	○	○	○	○
33.	○	○	○	○
	A	B	C	D
34.	○	○	○	○
35.	○	○	○	○
36.	○	○	○	○
37.	○	○	○	○
38.	○	○	○	○

Part II

I. Product: ________________

	SD	D	U	A	SA
1.	○	○	○	○	○
2.	○	○	○	○	○
3.	○	○	○	○	○
4.	○	○	○	○	○
	SD	D	U	A	SA
5.	○	○	○	○	○
6.	○	○	○	○	○
7.	○	○	○	○	○
8.	○	○	○	○	○
	SD	D	U	A	SA
9.	○	○	○	○	○
10.	○	○	○	○	○
11.	○	○	○	○	○
12.	○	○	○	○	○
13.	○	○	○	○	○
14.	○	○	○	○	○

15. Comments: ________________
____
____

I - I - T9

ANSWERS FOR UNIT I TEST

(Make a key with one of your answer sheets. A leather punch provides an effective way to punch out the correct holes.)

1. T
2. F
3. F
4. T
5. F
6. T
7. T
8. F
9. T
10. T
11. F
12. F
13. T
14. F
15. T
16. T
17. D
18. B
19. D
20. B
21. C
22. D
23. D
24. A
25. D
26. C
27. B
28. A
29. A
30. D
31. C
32. B
33. C
34. A
35. D
36. C
37. A
38. B

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor____________________ Date____________

Unit Number______ Lesson Number______ Date Lesson Started______

1. Amount of time used to complete lesson (to nearest ½ class period)______

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________

6. Which activity did you use?____________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain____________

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ______

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ______

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ______

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ______

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______

LEVEL II
UNIT FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

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If you need more room for comments, attach additional pages.

Instructor________________________ Date______________

Unit Number__________ Date Started__________ Date Completed__________

1. The approximate time spent in laboratory was______%.

2. Generally, this unit was found to be (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

3. The general unit objectives were (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ impossible to meet, (e) ☐ too broad, (f) ☐ too restrictive. If (c), (d), or (e) explain____________________

4. Generally, the activities were found (a) ☐ adequate, (b) ☐ not suited to the lesson(s), (c) ☐ not enough of them. If (b) or (c) explain____________________

5. The student booklet (a) ☐ provided enough background reading for the students, (b) ☐ should have contained more information, (c) ☐ did not fit together with the lessons. If (b) or (c) explain____________________

6. The instructional media for this unit was generally (a) ☐ effective, (b) ☐ ineffective.

(Be sure to fill out the items on the reverse side.)

7. Did you make any changes in the lesson sequence or contents in this unit?

(a) ☐ yes, (b) ☐ no. If you checked (a), please describe the changes.

____

____

8. Give a general summary of your feelings about this unit. Include the strong and weak points you found.

____

____

____

____

____

____

____

____

____

____

LEVEL I - American Industry
UNIT II - The Evolution of Industry
Unit Layout

Stout State University
Summer, 1967

Lesson No.	Periods Required	Lesson Title
*1	2	The Basic Needs of Man
2	3	A Search for Greater Productivity
3	2	The Results of Specialization
4	1	Group Living Requires Laws and Government
5	2	Increased Productivity Brings An Enriched Life For Man

*Suggested lesson for an eighteen week course.

LEVEL I - American Industry
UNIT II - The Evolution of Industry
Introduction

Stout State University
October, 1967

I. General Objectives

This unit addresses itself to the progress of man and the reasons for his progress. The basic objective is to show man's progress through the centuries in meeting his needs and how industry is involved in this progress. Man's quest to fulfill his basic needs have led him to develop skills, apply knowledge, and produce the necessities of life. In doing so man has gainfully used available human and natural resources.

Select one basic need, such as food, and follow its development through the centuries to illustrate how man progressed through its development.

The student booklets are supplemented by information at the rear of this lesson and following the last lesson. This information will be useful as reference material in developing other units.

II. Activities

The activities in this unit are related to stages of man's industrial progress. Students become involved in learning about the evolution of industry by studying the first tools, machines and skills as they relate to man's ability to produce.

III. Evaluation

Evaluation items have been provided for the lessons. However, other evaluation items may be added when needed. (Send copies of all evaluation items which have been added with your feedback information.)

IV. Instructional Media

The use of instructional media has been suggested for the following lessons. In some cases the media is optional, therefore, each lesson should be reviewed to determine whether a film or other media will be used.

A. Films.

Lesson	Concept Area
2	All, as related to the search for greater productivity.
4	Environmental concepts.

B. Other media.

Lesson	Title
1	SS: Man to Machine
3	FS: Industrial Revolution
5	FS: Living In a Machine Age

LEVEL I - American Industry
UNIT II - The Evolution of Industry
Lesson 1 - The Basic Needs of Man (2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Trace the development that has taken place in a particular area of industry (ref. introduction to this unit) from ancient times to present time. He should also be able to establish that man's basic needs have not changed much.

II. Scope

Man has tried throughout history to satisfy his basic needs. These needs are essentially food and shelter and, therefore, have not changed much.

III. Resources

A. Instructional media

1. SS: Man to Machine.

B. Literature

1. Student booklet, The Evolution of Industry, pages 1-8.

2. Life Books, Time Inc., New York, New York.

3. Encyclopedias.

4. The Story of Wheat. (May be found at the end of this lesson.)

IV. Content Outline

A. Introduction

1. This lesson will take a period of two days. We will talk about man as history tells us about him in ancient times and his progression. We will study his basic needs--food and shelter--then attempt to apply some of the techniques man has used to fulfill his needs.

Have your students start the first period by reading, The Story of Wheat, which may be found at the end of this lesson.

(NOTE: For those schools on an 18 week schedule, the activity, "Shipwreck," may be used at the end of the second class period. It may be found at the end of lesson 5.)

2. Start by identifying the basic needs of the students.

3. Then relate these to primitive man.

See activity and content for the development of this introductory information.

4. Select man's attempt to satisfy one basic need--need for bread--and follow its production through history from primitive man to the present. The student should realize that each historical event has a significance in relation to the satisfaction of this need.

5. Bring out the concepts of history and the general ideas we want to bring out in Unit II as defined in item II. Use your judgment on item II, not all of these will have to be brought out in lesson 1.

   a. Show how one invention led to another. (For example: The threshing principles are the same in the threshing machine and combine.)

   b. Bring out some of the important effects of the change in productivity in producing wheat. However, do not try to relate all of these. Later lessons can accomplish more of this.

   c. Point out how discoveries in other areas, such as steel making, new production techniques, and the harnessing of energy, help to increase the production of wheat.

   d. Note the role of skill and knowledge as a human resource.

   e. Identify the role of the natural resources.

   f. Show some ways in which the increase in productivity in this area has affected our present society in the United States.

(1) One farmer can feed 20 people. Hence, these people are freed to utilize their skills to satisfy other basic needs we have plus many of our desires.

(2) We are becoming an urban society.

g. Pulling materials from your original lessons. (Most of these lessons can be obtained by reorganizing the content in your first lessons.)

B. Activity and content

1. What do we have to have in order to live? (Write down your students' comments. Establish that basic needs are essential to life.)

Relate this to the growing of wheat processes, tools, etc.

2. Our basic needs are not much different than those of primitive men.

3. Describe man's early animal like existence in securing these needs. The National Geographic Magazine provides information on people who still live this way. (Establish that these people have to spend most of their time working to satisfy their basic needs.)

4. Now, let us take the production of one food product and follow it through history. The food will be bread and we will concentrate on the growing of the wheat. As we view this small part of history, try to identify what caused our ancestors to change their methods of production and also try to identify some of the results of these changes.

5. Establish, if possible, when wheat was first used--describe how it was produced and gathered. It may have been gathered only.

6. The following parts of lesson 1 might fit here--they are listed as suggestions.

   a. The use of tools. At first these were wooden clubs, bits of stone or bones. They served not only as weapons for his protection against his enemies, but helped in hunting for and preparing food.

b. (Here is a discovery in another realm that affected the production of food.)

Metal working. The discovery of metals gave man a new and more durable medium with which to work. He greatly improved his tools and as a result made new industries possible. The reference to an era as "The Bronze Age" or "The Iron Age" indicates the importance of metals. (Identify this as a means of increasing his productivity.)

c. Domestication of animals. Certain wild animals were found to be useful. Perhaps the first of these was the dog. The donkey and sheep are still widely used. Others depend on their habitat, such as the llama in the Andes, the reindeer in polar regions, and elephants in jungle areas. (Identify this as a new power source for man's use in plowing his fields and harvesting his wheat. Again, there is an increase in productivity. This might be a good place to indicate that another effect of the domestication of animals was the ability to move around more and faster. Do not, however, dwell too much on this at this point.)

C. Conclusion

1. In concluding this lesson, let's recall the basic needs of man.
2. What is food? How much would our basic need include?
3. Is clothing considered shelter?
4. What is shelter? How much protection is required? Does this differ? How about Canada as opposed to Mexico?
5. If time permits, the A. I. slide series, Man to Machine, will also serve as an excellent overview in closing this lesson.

SS: Man to Machine

V. Evaluation

PRIMITIVE MAN

A. This lesson covers the story of man's early development, from the animal like status which he first held.

1. What basic needs did the caveman have to satisfy?

2. Studies of archeology show that it took many thousands of years for man to advance beyond Stone Age culture. During all this time one generation lived exactly like another and people lived much like packs of wild animals. Why do you think progress was so slow among primitive people?

3. List three discoveries of early man which you consider most important. Tell why you chose each.

   a.

   b.

   c.

4. In his upward struggle, man went through various stages. Suppose that you had lived in each of those listed below and on the next page. Describe what you think your life would have been like in each during early times.

   a. Hunting:

   b. Pastoral:

c. Agricultural:

d. Industrial:

STUDENT WORKSHEET

1. Name the three basic needs of man.

   a. b. c.

2. Which of these probably accounted for man's slow development of industry in primitive times? Check two.

   _____ a. Lack of raw materials meant little with which to work.
   _____ b. Lack of written language made it hard to preserve knowledge for future generations.
   _____ c. Difficulty of making a living allowed little time for thought.
   _____ d. Lack of ability to move about prevented the spread of ideas.

3. How did primitive man use each of these to improve his lot?

   a. Pottery:

   b. Food preservation:

4. Match each of the terms in the first column with one related to it.

_____	1. Textile	a. Tanning
_____	2. Barter	b. Cloth
_____	3. Pastoral	c. Skill
_____	4. Agriculture	d. Exchange
_____	5. Leather making	e. Irrigation
_____	6. Craft	f. Flocks

5. Which of these products would primitive man probably not have had? Check two.

   _____ a. Leather things
   _____ b. Steel knife
   _____ c. Dried meat
   _____ d. Cheese
   _____ e. Compass
   _____ f. Charcoal

Key to Student Worksheet

1. Food, clothing and shelter.
2. b, c.
3. a. Containers, aesthetic values.
   b. Secure supply of food for scarcity.
4. 1-b, 2-d, 3-f, 4-e, 5-a, 6-c.
5. b, e.

THE STORY OF WHEAT

For untold ages, wheat has been an important food item. Even today about one of each five acres of cultivated land in the world raises wheat. More wheat is raised than any other cereal crop including rice.

Wheat belongs to the grass family. Since several wild species still exist in Asia, it is generally assumed that wheat had to originate there. Paleolithic (Stone Age) man must have stripped the grain from this wild grass and eaten it. Possibly he even crushed it with rocks to make a crude flour which could be used in cooking. Wheat must have been one of the first foods to be stored in the Mesolithic Age for future use since it can be kept for a long time without spoiling.

The cultivation of wheat started in the Neolithic (New Stone) Age perhaps 6000 or 7000 years ago. At first all small grain was sown broadcast. Then a pointed stick was used to punch holes in the ground for planting. To harvest it, the kernels were rubbed out by hand and the chaff blew away. Since wheat culture required that people settle down while the grain grew and matured, it is likely that civilization and production of wheat grew up together.

With the domestication of animals and the introduction of the plow, soil tillage was greatly improved. At first wooden plows were pulled by oxen; the Romans had such plows. The first iron plow was pateneted in the U. S. in 1797, however, iron was used for plows much earlier than this. Many improvements followed which made the plow suited to special conditions.

The use of fertilizers and crop rotation also helped increase yields.

Machines for seeding wheat have been used from very early times. The first of these, invented by the Chinese, was something like a wheel barrow with tubes to carry the seed from a box above to the soil. Drills were used in England by the middle of the 17th century. By the end of the century drills which controlled the rate of seeding had been patented. In our half of the 20th century machines are available which prepare the seed bed, deposit fertilizer, and plant the wheat all in one operation.

The harvesting of wheat has also undergone a revolution. The use of the sickle dates back to about 3000 B. C. The sythe, a similar though larger tool, evolved from it. The cradle was added to collect stalks of grain so they could be deposited in piles and bound by hand. The stripper had a saw toothed blade which striped the heads from the wheat and deposited them in a cart pulled by animals. The reaper was developed during the 19th century by combining the ideas of many inventors. Cyrus McCormick demonstrated his reaper in 1831. It made use of a reciprocating knife which cut against stationary blades and a reel which pushed the cut grain back on a platform.

At first, the cut grain was raked back by hand and bound into bundles with sheans of wheat. These bundles were then "shocked" so the grain could mature. Eventually a canvas belt was put over the platform to carry away the stalks of wheat and a mechanical device made to pack the wheat into bundles and tie them with twine. A similar harvester called the header used a sickle and reel to revolve the heads of wheat. This was stored in windows or stacked in piles for curing before threshing.

Threshing has likewise undergone great changes. At first the wheat was placed on a smooth, level surface or threshing floor and the grain removed from its husks by beating it with a hand flail or treading it with animals. Chaff was removed by winnowing. The principle of the threshing machine was invented in 1796. It used a revolving drum with projections which beat or rubbed out the grain just as the threshing floor had done. A series of sieves and blowers removed the grain from the straw and chaff. Later a blower was added to stack the straw. This stationary steam driven thresher has now been largely replaced by the self propelled combine which moves over the fields to cut and thresh the grain in one operation. Modern drying methods make it possible to cure the grain in storage. The internal combustion engine has almost completely replaced steam and animal power in the production of wheat. The use of power equipment has not only decreased the cost of producing wheat but has released thousands of acres of land which formerly were used to produce feed for horses and oxen.

The effect of the use of power in production of wheat is illustrated by these figures. In 1830 when humans did most of the work, it required about three hours of labor to produce a bushel of wheat. In 1896 with greatly improved machinery and animal power it had been cut to about one-half hour. By 1930 when mechanical power was beginning to be common it was about one-fourth hour. By 1950 with the wide spread use of tractors and large equipment this time had been halved again. It is even less today. (Britannica, Volume II, page 92.)

Plant breeding and experimentation have resulted in new varieties of wheat with superior qualities and greater yields. A good example is Turkey Red Wheat which has been widely used in our wheat belt.

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor______________________________ Date____________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)_______

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________
____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain______________________________
____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain______________________________
____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain______________________________
____

6. Which activity did you use?______________________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ______________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ______________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c). explain ______________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ______________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______________________

____

LEVEL I - American Industry
UNIT II - The Evolution Of Industry
Lesson 2 - A Search for Greater Productivity (3 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

   A. Show the cause and effect of advancement in tools and skills as man advanced.

   B. Identify ways in which the communication of man developed.

II. Scope

The search for greater productivity led to a need for new tools, processes, and skills. At the same time man learned to communicate through language, drawing, and printing.

III. Resources

   A. Instructional media

   B. Literature

      1. The Stages of Man. (May be found at the end of this unit.)

      2. Student booklet, The Evolution of Industry, pages 8-28.

      3. Life Books, Time Inc., New York, New York.

      4. A History of Industry by Osgood, Ginn and Company, 1921.

      5. "The Leakeys of Africa: Family in Search of Prehistoric Man," National Geographic Magazine, February, 1965.

      6. Other National Geographic articles on present day primitive cultures.

IV. Content Outline

   A. Introduction

      1. A study of man's industrial development is worthwhile for several reasons.

a. It is part of our heritage. We must know something about this if we are to be considered educated.

b. It helps us to understand the world about us. Since everything at the present grows out of something in the past, we often have to look to the past to understand the present.

c. It will help us to plan for the future. Events which are taking place today are bound to shape the future. The more we know about them and their background the better we can anticipate what the future will hold and make preparation for it.

d. Let's consider some of man's advancements and why such discoveries were made.

B. Activity and content

1. Discoveries by archeologists show that at first man lived a very animal like existence wandering about in small bands and surviving on roots or berries and such game as he could capture with his bare hands. As such he had no industry. But the story here is concerned with man's slow development from this primitive state to the complex industrial society which nurtures us and provides us with the high standard of living which we enjoy. It is interesting to note that early stages of civilization still exist in remote areas of the world.

2. Activity #1

Have each student do one of the following:

a. Describe (oral or written report) man's early tools or communication methods.

b. Bring to class an actual example of old or antique tools. You should be able to describe the uses of the tool and about the age of the tool.

Activity #1
Assign four days prior to teaching this lesson.

c. Bring to class an example of ancient methods of communicating. This could be hieroglyphics, an old printed page, an old telephone, etc. Each must be explained in writing or before the class.

(Try to bring out the reasons why each tool or communication method was developed. Attempt to identify the tools or methods that came before and after the one being discussed.)

3. Activity #2

Use the activity sheet, "Cause and Effect."

Activity #2

This activity sheet is self explanatory and may be worked in class or as an outside assignment.

C. Conclusion

1. In concluding this lesson refer to the student booklet, the article titled The Stages of Man, and the concept areas studied in Unit I.

2. Man really discovers today as he did centuries ago, except that he has the advantage of storing knowledge which he can build upon.

3. Relate this to our concept areas. Example: Ancient man had need for more food, therefore, he found new ways of growing and cultivating. Today we need more food, therefore, we irrigate, fertilize, and develop machines for farming more land.

V. Evaluation

A. Identify the steps you think were necessary in the development of today's:

1. Cultivator	4. Newspaper
2. Lights	5. Power saw
3. Tractor	6. Select others with teacher's approval

B. The written explanations should take about 15 minutes.

CAUSE AND EFFECT

Down the middle of these pages is a list of inventions or discoveries discussed in your student booklets. Now, inventions or discoveries don't just happen. They occur because of a need which exists. In the column at the left describe this need or cause. In the column at the right, list some effects (three if possible) of the invention or discovery.

	Tanning leather	
	Writing	
	Money	
	Slavery	
	Craft guilds	
	Agriculture	
	Shipbuilding	
	Cotton gin	

Jigs

Steam engine

Guage blocks

Tungsten carbide

Automation

Apprenticeship

Irrigation

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor______________________________ Date____________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)_______

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain______________________________

____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain______________________________

____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain______________________________

____

6. Which activity did you use?______________________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________
____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________
____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________
____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ________________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________________
____

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

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Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor________________________ Date________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain________________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain________________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain________________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain________________________

6. Which activity did you use?________________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

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____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain____________________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references____________________

____

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13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor______________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made______________________________

____

LEVEL I - American Industry
UNIT II - The Evolution Of Industry
Lesson 3 - The Results of Specialization (2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

A. Identify specialized enterprises and specialized skills required in industry.

B. Show how specialization has increased productivity and in turn brought about the need for marketing and new transportation methods.

II. Scope

As a result of a need for greater production, man found many other needs or problems to be dealt with. Each of them a reaction of an earlier problem. In this lesson we will trace some of these events.

III. Resources

A. Instructional media.

1. FS: Industrial Revolution.

B. Literature

1. Student booklet, The Evolution of Industry, pages 43-49.

2. The Stages of Man. (May be found at the end of this unit.)

3. Encyclopedias.

4. Life Books, Time Inc., New York, New York.

IV. Content Outline

A. Introduction

1. Primitive man was truly the "jack-of-all-trades" because he had to provide everything for himself. He had to provide the food by finding wild berries, grain, or hunting of fish or animals. He had to provide clothing and other shelter for protection from the elements.

2. We can understand that it had to have been a full time job. We can also understand that he may not have been proficient at all his tasks. He may have been an excellent fisherman, so he ate much fish; or he may have been good with a bow and arrow, therefore, he ate much meat, etc.

3. How many of you could make a bow and arrow without using our shop equipment? (Discuss the way primitive man might have done it.)

B. Activity and content

1. During this lesson we are going to determine what we can do with three methods of production. We will assume that each of us is a specialist in woodcraft and want to make some tent stakes. Some will use primitive methods, some American pioneer methods, and others modern American industrial methods.

2. One third of this class will be given pieces of wood about 3/4" x 1" x 8" and be asked to make a tent stake using items similar to ancient man's. This would include rocks, fire, or other non-metalic tools that ancient man may have used. (Have the students bring the flat or sharp stones. Bricks may have to be substituted in some cases.)

Assign this one day in advance.

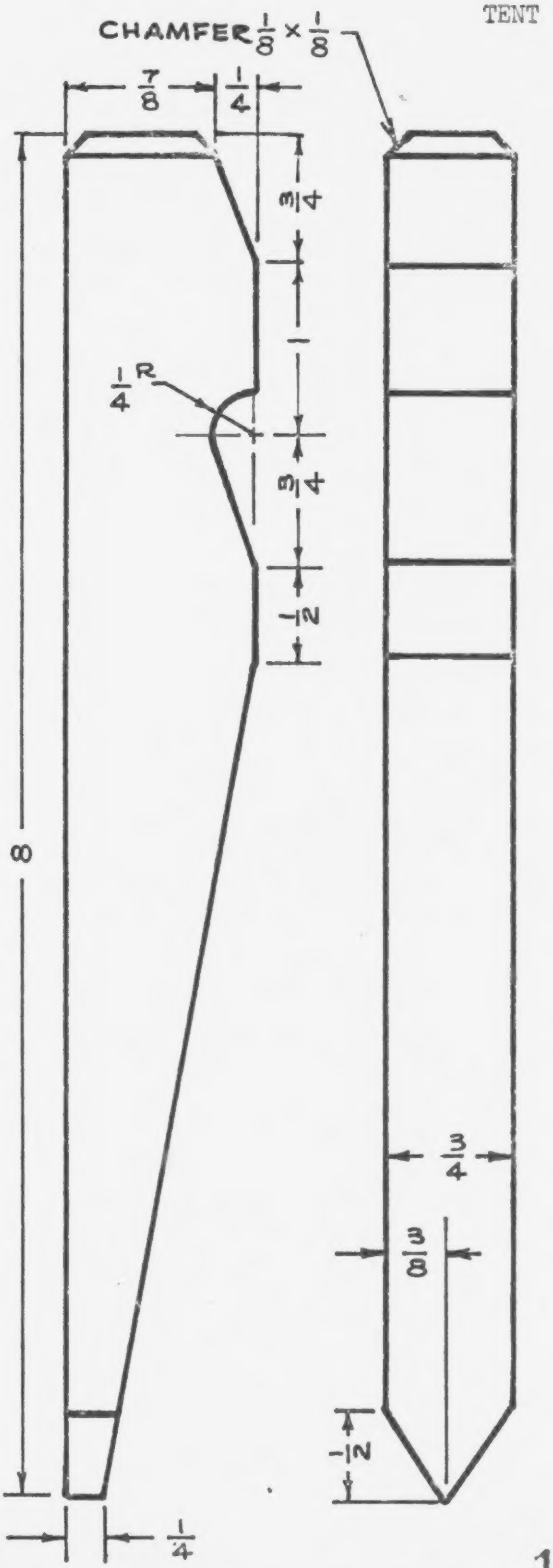
3. One third of the class will be given a piece of wood (ref. activity sheet) and asked to make a tent stake with tools similar to American pioneers (hand tools only).

4. One third will be asked to produce a tent stake as shown on the activity sheet (power tools, jigs, fixtures, etc.).

5. Each group is concerned with producing as quickly and accurately as possible. However, let's consider why it was a full time task for primitive man to provide for his basic needs. What was the average time needed by each group to produce one tent stake? Did people tend to become more specialized when production was increased? Why?

Distribute activity sheets for making tent stakes.

TENT STAKE



Stakes have been used since the dawn of history. Primitive man used them perhaps for stretching hides of animals for drying or securing his crude shelter. We use them for tents, guide wires, and many other things.

This activity is designed to give you a better understanding of the tools and production methods used in different stages of man's industrial development. Then you can compare these to see how progress has been made.

First you might try to make a stake like the one here using no tools whatsoever, only your bare hands. Then make each of these:

1. Stone Age stake.

   Using only tools available to Stone Age man, make a stake like the plow, no metal but wood, animal parts such as bones or teeth, stone, and fire may be used.

2. Hand crafted stake.

   Using tools available to pioneers in America and generally to all early civilizations make the stake. No power tools, but any shop hand tools may be used.

3. Factory made stake.

   Using power tools and production line methods, mass produce the stake.

C. Conclusion

If time permits, a second activity may be used. This is a filmstrip titled Industrial Revolution, and it will serve as a conclusion to this lesson. The filmstrip should be previewed as each frame contains a brief narration.

FS: Industrial Revolution.

V. Evaluation

A. Select a local business and identify three specialized jobs within this business.

B. Describe the types of specialist we used in producing a factory made stake.

C. How did increased production affect the area of marketing?

D. How was the concept of transportation affected by increased production and improved marketing techniques?

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor________________________ Date________________

Unit Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain________________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain________________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain________________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain________________________

6. Which activity did you use?________________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain________________________

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

Stout State University
Summer, 1967

LEVEL I - American Industry
UNIT II - The Evolution Of Industry
Lesson 4 - Group Living Requires Laws and Government (1 period)

I. Objectives: At the conclusion of this lesson the student should be able to:

A. Describe the reasons why man found a need for government and laws.

B. Show how laws and government started and describe the ways in which they have changed.

II. Scope

As men learned to live in groups, for convenience and protection, he soon found certain principles being accepted by nearly all in the group. Later these principles were written in a formal law by a governing body which was selected by the group.

III. Resources

A. Instructional media

B. Literature

1. Student booklet, The Evolution of Industry, pages 29-38.

2. A History of Industry by Osgood, Ginn and Company, 1921.

3. Encyclopedias.

4. The Stages of Man. (May be found at the end of this unit.)

IV. Content Outline

A. Introduction

During this class period we will find out more about the laws and their origin and we will also discuss government, how and why it was started.

B. Activity and content

(The teacher may ask a history teacher or someone else who is knowledgeable in the area of government and/or law (this could be a local lawyer) to be a guest speaker.)

1. About two thirds of the class period should be spent in lecture by the guest speaker. The remainder in a question and answer period.

2. Be sure to prepare a simple outline of what the speaker is to discuss in his talk, the length of time involved, and when you would like to have him come to your school.

3. Ask the speaker if he would like any media prepared. After the lecture present him with one of your Unit I products.

4. The A. I. teacher may wish to present this lesson. If so, he should refer to the suggested literature in III, B.

C. Conclusion

To conclude this lesson the teacher should orally ask some of the questions found in the evaluation.

Select the guest speaker about three weeks prior to this lesson.

V. Evaluation

A. What do we mean by "unwritten law"?

B. Do you think many of our present laws were originally just accepted customs?

C. What group of people are noted for ancient law?

D. What purpose does the government serve?

E. When did early man find a need for government and law?

F. How do you think man's first leaders were chosen?

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor_____________________________ Date__________________

Unit Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)______

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

   ____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____

   ____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain__________________________

   ____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain______________________________________

   ____

6. Which activity did you use?_____________________________________

   The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

   ____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ________________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________
____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ______________
____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ______________
____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______________________
____

LEVEL I - American Industry
UNIT II - The Evolution Of Industry
Lesson 5 - Increased Productivity Brings an Enriched Life For Man (2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Show how man's ability to produce has increased his standard of living.

II. Scope

Man has continually become more efficient. First he spent nearly all his time providing his basic needs. Today, American industry provides for the basic needs plus many luxuries for its people.

III. Resources

A. Instructional media

1. FS: Living In a Machine Age.

B. Literature

1. Student booklet, The Evolution of Industry, pages 50-65.

2. The Stages of Man. (May be found at the end of this unit.)

IV. Content Outline

A. Introduction

1. During this lesson we are going to examine and attempt to explain the events that took place following some discoveries of man.

These discoveries may be assigned as reports.

2. If reports have been assigned, they should be about three to five minutes in length.

B. Activity and content

Below is a list of statements about some of man's discoveries. Read the statement, then take about four or five minutes to trace the events following.

These statements could be reproduced for the students.

1. Fire was probably one of the first. With it he could warm himself, cook his food, make tools, and in many ways better his life.

2. The use of tools. At first these were wooden clubs, bits of stone or bones.

3. Food preparation and storage. The drying of meat or berries for later use are examples. By this means man could survive during periods of scarcity.

4. Leather making. Man learned to use the skins of animals either as raw hide or tanned for clothing, shelter, and tools.

5. Basket weaving. Since nature provided a great variety of raw materials which could be made into baskets, it is little wonder that basket making became one of the earliest industries.

6. Pottery making. When man learned that clay hardened when heated, he had the key to making containers superior in many ways to baskets.

7. Textiles. A simple wooden spindle enabled a person to make thread or yarn which could be made into cloth on a simple loom.

8. Metalworking. The discovery of metals gave man a new and more durable material with which to work. He greatly improved his tools and as a result made new industries possible. The reference to an era as "The Bronze Age" or "The Age of Steel" indicates the importance of metals.

9. Decoration. The beautiful designs and colors on pottery, cloth, and jewelry show early man's need to express his sense of beauty.

10. Agriculture. It was learned that certain plants could be cultivated to yield a more reliable food supply.

11. Domestication of animals. Certain wild animals were found to be useful. Perhaps the first of these was the dog. The donkey and sheep are still widely used.

12. Building. The use of stone, poles, reed, adobe, and other materials in building had many advantages over caves as dwelling places.

13. Transportation. As man accumulated goods, he needed ways of moving these over land and water. The invention of the wheel helped greatly.

14. Trade. The ability to move goods encouraged the desire to exchange these for others. This led to the founding of markets as places for exchange and money as a medium of exchange. Trade routes developed.

15. Alternate activity. On the following page is an alternate activity that may be used. Distribute to your class. Allow about thirty minutes for completion. Then discuss each item as described above.

16. Show filmstrip, Living in a Machine Age.

FS: Living in a Machine Age.

C. Conclusion

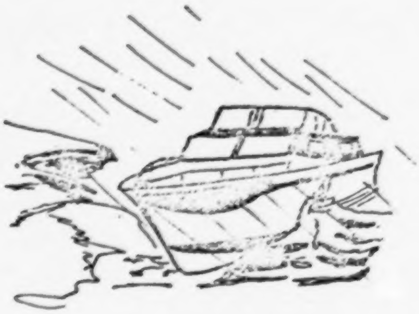
1. To conclude this lesson you may wish to give a test. However, the activity, Shipwreck" or "Lost," should be included as it provides an excellent opportunity for the student to visualize himself in a situation similar to that of ancient man.

Activity "Shipwreck" or "Lost."

2. The activity could be worked at home by the students.

SHIPWRECK

Imagine yourself captain on a sailing ship in the Indian Ocean far off the shipping lanes. During the night a typhoon hits the area and your ship is tossed about like a cork. You are unable to eat or sleep and can only hold on for your life. The typhoon continues for several days, battering your ship and shipmates unmercifully. Suddenly, your ship starts to break up and you find yourself being pitched into the water. It is night and you can see very little except the water around you. You are able to keep yourself afloat by holding to a piece of the mast until dawn when the storm subsides. You find that you have drifted close to an island. Making your way to the beach, you crawl up on the sand and collapse, exhausted. After sleeping many hours, you awaken to find yourself quite alone and very hungry. As you make your way through the trees, you find that the island has fruit and berries in abundance as well as small game and birds. Food in your stomach and a natural curiosity lead you to further exploration. During your climb to the highest hill, you find human bones in and around an old campfire (cannibals?) and the footprints of large animals. Both of these things mean danger to your existence. Frantically searching the area for a cave and finding nothing, you go down to the beach in hopes of finding some remains of your ship. It has completely disappeared. Suddenly, you hear human voices. Creeping fearfully through the bushes toward the voices, you are overjoyed to find three haggard survivors of your ship. The ship's carpenter, the cook's assistant, and the second mate who was the ship's navigator. As captain you take over and make plans for your survival.



LOST

Imagine that you have gone fishing in a remote area of Canada. In the week since you and your guide left the trading post where you were outfitted, you haven't seen another person. It is late summer with warm days when the sun is shining but cold at night or when rain is falling.

In trying to shoot the rapids in a wild Canadian river to avoid a difficult portage, your canoe is capsized and your guide drowns. Somehow, you miraculously escape and make your way to the heavily wooded river bank. When you recover the crushed remains of the canoe, you find that it has been damaged beyond repair and there is no trace of either your equipment or the guide. The only things you have saved are your hunting knife and a waterproof carton of matches which you had with you. Suddenly you realized that you are lost and alone in the wilderness without a map or compass, far from the nearest human being. You must immediately begin to plan for your survival until you can get back to civilization.

STUDENT WORKSHEET FOR
SHIPWRECKED OR LOST

1. How would you satisfy these needs?

   a. Food:

   b. Shelter:

2. In what way would your life be like that of primitive man?

3. In what way would your life be different from that of primitive man?

4. What other needs might you have besides food and shelter?

5. What efforts would you make to get back to civilization?

6. On a separate piece of paper draw a picture of the shelter you would provide for yourself. Describe it and tell why you designed it as you did. Tell where you located it and give reasons for selecting this location.

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/66

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____

LEVEL I - American Industry
Unit II - The Evolution Of Industry
Reference Reading for Unit II Lessons

Stout State University
Summer, 1967

Taken from the W. E. A. Journal--March, 1964.

CONCEPTS OF HISTORY

I. In developing the history of industry the student should acquire or have strengthened these concepts.

A. The concept of change. Nothing remains constant. Change is inevitable and cannot be avoided. The world of tomorrow will be different from that of today, as the world of today is different from yesterday. The development of the automobile is our example.

B. The concept of continuity. Human experience is continuous. One thing grows out of another and in turn leads to others. All are interrelated. Specialization led to trade. Trade led to a need for money, money led to the development of a banking system, and so forth.

C. The concept of progress. Progress is change toward a desired goal. Through history there has always been an upward trend although at times reversals have taken place. The production of food is an example. At first almost all of man's effort was directed to getting a bare and uncertain living. Gradually this improved until at present only about one person out of seven in the United States is needed on the farm to provide a bountiful living for all of us plus a surplus which can be used to feed the hungry nations of the earth.

D. The concept of cause and effect. Events take place because there are reasons for them. These may be very complex and hard to trace but they are there. Often a study of history will help reveal them. An example is the race riots which have taken place in our cities. Until the reasons for these are discovered, little can be done to prevent them in the future. The reasons are many and far reaching and may be difficult to discover.

E. The concept of historical methods. This refers to the way students should proceed in collecting, evaluating, and applying the facts of history. It is part of the teacher's responsibility to teach students how to do this. Several quotations from Russel Mosley, who directs the N. O. E. A. in the Wisconsin State Department of Public Instruction, in the W. E. A. Journal for March, 1964 apply here:

"We may look upon history as having an existence of its own, a body of pre-existing facts that must be collected, organized, mastered, and then woven into a pattern of 'interpretation'."

"What we too often do is to take away from the learner the thrill of collecting the facts and the excitement of reading his own tentative conclusions. Instead we concentrate on forcing the pupil to master a preselected body of facts and its interpretations."

"The pupil, in the process of becoming his own historian, should be presented with carefully selected local primary and secondary sources. Then he must be guided by the leather in making discoveries. However, these discoveries should be based on his own reading, his own searching, and his own thinking."

LEVEL I - American Industry
UNIT II - The Evolution Of Industry
Reference Reading for Unit II Lessons

Stout State University
Summer, 1967

THE STAGES OF MAN

I. Stages in the history of man's development. It must be noted that there is no distinct marks between the stages. Changes were very slow and gradual. Tools were placed at different times in various parts of the world. In fact, all stages still exist in remote areas.

A. Hunting stage

1. Earliest pre-historic advent of writing. Records show that man survived by hunting. He roamed the countryside in groups like wild animals and lived from the flesh of other wild life which he could catch with his bare hands, or from edible parts of plants which grew wild. The crudest of shelters--the overhanging branches of trees--or caves protected him from the weather. We often refer to man of this period as cave man.

2. A club, perhaps, was one of his first discoveries. With it he could better protect himself from his enemies and kill the game he needed. Eventually he found that one end of the club could be pointed to make a crude spear which could be thrown to afford protection at a distance. Near the end of the prehistoric period when he made a bow and used the pointed stick as an arrow, he further increased the distance at which he could kill.

3. When man discovered that a chipped piece of stone attached to the end of the shaft of wood which formed his arrow or spear gave it greater penetrating power, he made another great step in his tool making career. The chipped stone could also be used to make a knife, an axe, or a scraper and enabled him to skin an animal and cut up its flesh or to cut and shape wooden or stone objects. Thus he had the means of making better shelters and fashioning clothing which made it possible for him to live in more hostile climates. Flat stones could also be used to crush seeds and nuts, making them easier to eat, or to crack the bones of animals to get the marrow. The "Old Stone Age" or "Paleolithic Age" which is characterized by rough or chipped stone implements started about 50,000 years ago and lasted until about 8,000 B. C.

4. The use of fire was another boon to pre-historic man. At first, as all animals are, he must have been afraid of fire when he saw it come out of a volcano, or burst out when lightning struck. But eventually he learned that it would not hurt him if he kept his fingers away from it, in fact, it could help him by warming his body when the weather was cold. Somewhere along the line he learned to cook with it. Bones no longer had to be cracked for the marrow, but it could be sucked out when softened by heat. Flesh of animals and coarse vegetables became easier to eat when cooked. Man had more time and a new tool for hunting or making tools. Undoubtedly fire helped man to survive the ice sheets which spread over much of Europe, Asia, and North America during Stone Age times.

5. During the many thousands of years of the "Paleolithic" or "Old Stone Age," little progress was made by our standards. The use of metal had not been discovered; animals--except possibly the dog--had not been domesticated; agriculture had not been discovered. Basket and pottery making had not been learned. Yet man, with his inventive nature and his ability to adapt himself to change, came a long way. His achievements in developing stone, tools, in learning to use fire, and in making clothing from hides of animals must be considered as equally significant as our learning to fly or to use atomic power.

Slow progress yet great achievement.

6. The transition from the "Old Stone Age" or "Paleolithic Age" to the "Middle Stone Age" or "Mesolithic Age" took place around 8,000 B. C., when man learned to store food for future use. In early times, just as cattle do now, he would eat when hungry. Then one day it dawned on him that he could save food when it was plentiful and use it for times of scarcity. He learned to gather seeds and store them. This required containers, so basket making was invented. Pottery also came into use for containers when someone discovered that clay hardened when burned in the fire. From this it was but another step to shape the clay into the form of a container before burning it.

Pottery making used.

B. Agricultural: Pastoral stage

1. Agriculture had its beginning in what is called the "Neolithic" or "New Stone Age" about 7,000 B. C. in the Near East and 4,000 B. C. in Europe. Besides the introduction of agriculture, this age is characterized by the use of polished stone implements and the extensive use of pottery.

2. The discovery that seeds, when covered with soil, would grow and reproduce their kind gave man a new and more reliable way of assuring himself of a supply of food. No longer did wild plants have to be relied on. However, new tools had to be invented for cultivating the crops. The hoe, made of a sharpened stick or stone attached to the end of a stick, made its appearance. Irrigation and the use of fertilizers followed because they made the crop still more reliable.

Agriculture discovered.

New tools.

3. Domestication of animals came at about this same time. It is thought that the idea of taming animals first came when hunters captured young animals and took them home for pets. It was learned that they could be used for food and hides just as wild animals and were easier to obtain. Dogs were probably the first animals domesticated. Sheep and goats, also among the first, provided wool as well as food and leather.

Domestication of animals.

4. Textiles were developed early in man's history. Thread spun from the wool, as well as from cotton and linen, dates back to this time. With thread, cloth became possible and so the loom was invented for weaving fabrics. This new material, better in many ways than leather, became available.

5. A certain amount of selective breeding of plants and animals took place, since only those which provided the best materials for man's use would be kept. In this way quality was improved. Cotton, for example, made better thread if it had longer fibers. To this day Egyptian cotton is considered the finest in the world because of its long fibers developed through many centuries.

Selective breeding.

6. When metals appeared about 4,000 B. C., stone tools were gradually replaced by metal because it could be sharpened better and made into thinner shapes. Gold and copper, which appear in their natural states, were the earliest metals used. Gold, because of its beauty and easy working qualities, found its way into ornaments. Copper, which hardened when hammered, was more suitable for tools and weapons. It was also discovered that these metals could be melted and cast. From the melting of copper it was but one step farther to the heating of copper ore to reduce it to metallic copper. When it was found that tin could be mixed with copper to produce bronze, a tougher and harder material than copper was produced. This era of the first use of metals is often called "The Bronze Age." Another metal, iron, appeared many years later than copper and bronze. Iron beads, which date back to 4,000 B. C., have been found in an Egyptian tomb; but the first use of iron for industrial purposes appeared in the Tigris Euphrates valley about 1,500 B. C. From there it spread to other parts of the world. Just how the first iron was produced is not known since it does not appear in a free state as do copper and gold. Perhaps some early experimenter, knowing that copper could be obtained from certain rocks by heating them, was heating other kinds of rocks and stumbled on iron ore. At any rate, iron--being more plentiful and cheaper than bronze--soon began to replace it. The era when iron was first used is sometimes called "The Iron Age."

The Bronze Age

7. The introduction of agriculture caused man to settle down in one place. When he changed from hunting to agriculture, he no longer had to roam about in search of food. In fact, he was forced to stay in one place to plant, tend, and harvest his crops at least for part of the time. Thus he became more sedentary and tended to build more permanent homes. These were often grouped in communities for companionship or protection against enemies.

Agriculture makes life more settled,

8. Another result of agriculture was the introduction of slavery. During the hunting stage enemies were killed since they were of no use. But in a farming economy, captured people could be put to work and their labor became valuable since it increased the wealth of the slave owner and freed him for other things. — Slavery

9. After the domestication of animals, some people found that they could make a better living by tending their flocks or herds than they could by hunting or farming. Their animals supplied all their needs--meat, milk, cheese for food; leather, wool, sinews for shelter; bones for tools and weapons. This pastoral type of life tended to prevail as it does today in areas which are too rough or have a climate unsuited to agriculture such as among the nomadic tribes of Asia. Farming and raising of livestock was also often combined in pre-historic times. — Pastoral life.

C. Industrial stage

1. Industry refers to the production of goods or services. In a sense, man has had industry ever since he first chipped a stone to sharpen it so it would cut better. However, an industrial society to us means one which is highly specialized, or in which each person does what he can do best and depends on others for things which he does not do himself. This idea too is very old. Among primitive people who are still in the hunting stage, the man invariably does the hunting while the woman prepares the food and makes the clothing. But the family in pre-historic days, as during our own colonial period, was a self sufficient unit and provided for itself all the things it needed. We do not consider this as an industrial society. Another idea has to be added, that of having a large number of people all living together in a town or city. — Definition of industry.

2. The seeds for an industrial society were sown when man first discovered that some people could do certain things better than other people could do them. For example, one man might be good at chipping rocks to make points for a spear while another may be more skilled in shaping clay for a pot. The result was that one man spent his time making spear points while the other made pots. When they exchanged, each had a better product than he could have made himself. In addition, the longer each worked at his job the more skillful he became and the quicker and better he could do his job. This is specialization. — Specialization.

Development of towns.

3. As people started to specialize and become dependent on each other, towns were formed. They provided places where people met to exchange their goods. The craftsmen tended to move to the towns so they could be near the markets for their goods and more easily get the raw materials they needed. As a result of crowding people together some kind of organization and rules had to be set up. The complexities of city life began to unfold.

4. The city-state appeared. People living in or near a town who depended on the town for protection or supplies formed an independent organization and administered their own laws and justice. Because of common interests, these city-states tended to unite with each other to form nations or civilizations. The first great cities and civilizations appeared between 3,500 B. C. and 2,500 B. C. along the Tigris and Euphrates rivers in Asia, the Nile in Egypt, and the Indus in India. Later, the Greeks developed a much more advanced civilization which was taken over and built on by the Romans. In the New World, similar civilisations developed in Mexico and Peru.

5. As trade developed the need for transportation increased. Finished products had to be moved to markets; raw materials brought in; people carried from place to place. Horses and donkeys were domesticated and were used. The wheel, invented in some unknown passtime, made possible the use of carts and wagons. Roads were built. Boats, which at first were hollowed out logs, could be made larger and more sea worthy after the invention of saws which could cut logs into boards. Sails were also added to make it easier to propel the boats. Transportation tended to spread ideas as well as products. The Phoenicians were one of the earliest sea-faring nations and did much to spread ideas as well as products to the Mediterranean countries and along the Atlantic coast to England.

6. With the coming of cities and trade, the need for a written language became apparent. Records of transactions and agreements had to be kept. The first writing was made by drawing pictures of objects such as trees or fish or oxen. Gradually symbols, which were easier to make, replaced the pictures such as to represent ox. It perhaps represents the horns of the ox. As symbols became more abstract they no longer were associated with actual things. For example: may have become x to represent a sound like the x in ox. The series of symbols to represent various sounds became our alphabet. With them, untold numbers of combinations could be made to represent ideas. Writing was probably invented in Samaria about 3,000 B. C. There, wedge-shaped inscriptions (cuniform) were pressed into clay tablets. Egyptians may have gotten their idea for writing from the Samarians or invented their own (hieroglyphic because it was first used by priests). They used a paper-like reed called papyrus for much of their writing. It was easier to carry about and store than the clay tablets of the Samarians. Writing was one of the greatest of inventions because it made possible the recording of information which could then be handed down to future generations and not have to be learned over again.

Barter and money.

7. The need for a way of determining the value of a product accompanied the growth of trade. At first barter was the only method. A pig, for example, might be traded for a sack of potatoes. But suppose you had a horse to sell and needed only a head of cabbage, It would be difficult for you to make a deal without paying too much. The Egyptians solved this problem by valuing things in terms of weights of copper, in units of 91 grams each, called a uten. The Samarians had a similar system but neither country ever struck coins. The first coins were made of gold or silver in Lydia during the seventh century B. C. where the king stamped pieces of metal as a guarantee of their value. Ever since then, coins have been used as a medium of exchange. The idea of credit, a promise to pay as represented by paper money or credit card, did not come until the "Middle Ages." Now, nearly all business is transacted with credit. The use of money instead of barter encouraged the development of industry in several ways.

a. It became easier to accumulate wealth. Money could be kept without spoiling as vegetables or meat might. This accumulated wealth could be used to expound a business or buy new equipment.

Advantages of money over barter.

b. Trade was made easier. It was no longer necessary to look around for someone who had something of the same value as the item you had to barter. Think of the horse and cabbage. Because trade was easier it grew more rapidly and there was more demand for goods which, in turn, increased manufacturing.

c. Specialization was encouraged. A person no longer had to produce a variety of items so he would have something to trade, but would concentrate on the one he could do best and became an expert at it.

d. A higher standard of living resulted from the above because it made possible the production of more and better goods and services.

8. Another development which came with the rise of industry was the need for measurements. The farmer who had wheat to sell had to have some way of measuring the amount of grain he had; just as the weaver who had cloth to sell had to measure his cloth. If either of these men had hired help, he would need some way of measuring the time his helper worked so he could pay him accordingly. So, as the need presented itself, systems for measuring volume, weight, distance, and time were invented. At first each people or tribe formed their own standards. As trade or warfare brought people together, standards which were much alike gradually blended and only one prevailed. The cubit is a good example of this. No one knows where it originated but it probably represented the distance from the elbow to the tips of the fingers and was handy and accurate enough for some purposes. It was widely used in ancient times. The "royal cubit" of Egypt used for building the great pyramid was 20.62 inches long. The Biblical cubit, as well as others in use then, varied somewhat but all were about 20 inches long. The British units--yard, pound, and gallon which we use--were brought to Great Britain by the Roman conquest.

As civilization developed and more accurate units of measurement were needed, they were developed. Interchangeable parts for machinery could not be made until Carl Johanssen invented a very accurate gauge block which could be used for setting instruments and to check the accuracy of parts. Johanssens blocks were accurate to 1 part in 150,000. Even this is not close enough for our sophisticated guidance systems which may use wave lengths of light, accurate to 1 part in 10 million.

Need for greater accuracy.

The story measuring time is equally fascinating. It starts with the clepsydra or water clock used in Egypt as early as 1,400 B. C. and the sun dial which used the length of the shadow of the sun to indicate the time of day. These weren't very accurate but served their purpose until greater accuracy was needed. The cesium clock which makes use of atomic ocillations is accurate to within 1 second in 1,000 years. The future achievements made possible by accurate instruments such as these can only be imagined.

9. Another idea which started after craftsmen moved to the towns was that of craft guilds. These were organizations of people who made their living by a certain craft. The bakers of a town, for example, might form a guild. At first these were formed for mutual helpfulness such as supporting a member's family when he was ill. Often they were dedicated to the worship of the patron saint or god of the craft. One way to do this was to maintain high standards of quality for their product. The guild hall seal (hallmark) was a guarantee to the customer that he was getting a quality object. High standards of workmanship required qualified craftsmen. So guilds were interested in promoting education and setting standards of workmanship. The apprenticeship system, still in use today, was set up. When a boy was old enough to start learning a trade, usually about 12, he apprenticed himself to a master craftsman who agreed to teach him the trade.

Craft guilds.

Apprenticeship system.

After a period of four to seven years he would have learned what his master could teach him and he would become a journeyman. This implied that he would "journey" about learning what he could from other masters of the trade. To become a master craftsman he would have to complete his journeyman requirements and usually produce a piece of original craftwork. As a master craftsman he could set up his own shop.

Another way guilds protected their craft was to regulate competition. No one would be allowed to work at a craft in a town unless he belonged to the guild. Competition among members was strictly regulated too. No one was allowed to do anything, such as advertise his product, which would give him an advantage over another member. Wages, hours of work, and working conditions were also regulated.

As a result, guilds often obtained monopolies in their towns. Then trouble would often result because they could charge excessive prices or get by with inferior workmanship.

To the craftsman, his guild was his club, his insurance company, and his labor union. To us, they are interesting because our modern labor unions grew out of them.

10. The shops, or factories, of early times were small, usually not over six or eight workers. In it you would find a master craftsman with his apprentices and journeymen hand crafting articles which could be sold to the public. Nothing like our factory system with its hundreds or even thousands of workers developed until the time of the industrial revolution in the latter part of the 17th century.

Shops

11. The ability of man to satisfy needs reached a peak in Roman times. The Romans had inherited all the crafts and skills of the ages when they conquered most of the known world. These were developed to a high degree and brought a very high standard of living to the Romans. But when Rome fell in 576 B. C., law and order disappeared and most of the things developed by Rome were lost. The period in history known as the "Middle Ages" started with the fall of Rome and lasted until the discovery of America in 1492.

During the early part of the "Middle Ages" or "Dark Ages," stagnation settled over Europe. People survived the best they could by attaching themselves to a strong-man landholder. This was surfdom or the manorial system whereby people traded their labor for protection. Because roads fell into disrepair and robbers were common, trade and industry virtually disappeared. Barter again became the method of exchange. Towns ceased to exist. Each community became self sufficient.

The "Middle Ages" or "Dark Ages."

During the second part of the "Middle Ages" trade began to revive and "fairs" were set up where traders from far away places could exchange their silk, textiles, tools, precious gems, and the like for the flax, wool, and other products of the manor. The need for protection against robbers caused these traders to form leagues. The most famous of these was the Hanseatic League. Fairs gradually became towns as people moved to them from the manors. There they could find employment and freedom and they could practice their crafts nearer to the markets. Money again appeared and credit began to be used. A new class of people, the bourgeoise--below the clergy and nobles but above the peasants, came into being. These were the wealthy business men, the forerunners of modern capitalists. They came to have great power and their interests often conflicted with those of the craft guilds.

Later "Middle Ages."

During the latter part of the "Middle Ages" the crusades of the 12th and 13th centuries introduced the people of Europe to a way of life superior in many ways to the crude life they lived in their huts. Persian rugs, glass making, sewers and water mains, medical services, sugar cane, spices, silk and fine fabrics--all these appealed to them and did much to stimulate trade and get them started in new industries. Thus Europe slowly awoke from the lethargy of the "Middle Ages."

12. Near the end of the "Middle Ages," the stage was set for a new act about to take place--the age of discovery. The crusades had created a desire for the luxury of the East. Traders brought rare and expensive items from the East over the long land routes. Wealth was building up in the hands of merchants and money was available for exploration. So people began to seek a cheaper way of getting the things they wanted.

Age of discovery.

Portugal was, due to its location, one of the leading seafaring nations of its time. Equipped with ships which could sail the oceans and the daring that comes from experience, the Portugese sailors had steadily worked their way down along the coast of Africa looking for a water route to Asia. In 1488 Bartholomew Diaz rounded the Cape of Good Hope and found the long sought water route to India and China and their treasures. Portugal shortly became one of the leading merchant nations of Europe.

Discoveries

Meanwhile Spain, a rival of Portugal, decided to send out Christopher Columbus to seek another water route to India. Columbus had the idea that the earth was round and so by sailing west he would reach the east. In 1492 Columbus set out and other explorers followed in his steps. We all know the results.

Effects on industry.

Since this is the story of industry, we must consider the effects of the age of discovery on industry. In the first place, it opened up tremendous new resources of forest, minerals, and fertile soil which to the merchant capitalist provided the raw materials needed by industry. America was the "land of opportunity" to which poor people could go for a better living. Kings found here the gold and silver which would make them wealthy and powerful.

In the second place, new ideas from the Indians of Central and South America--the Mayans, the Aztecs, and the Incas--influenced the lives of their conquerors. When the Spanish came to their countries seeking gold early in the 16th century, they found established civilizations with beautiful art, fine architecture, and well organized governments. What is most remarkable, they had made these accomplishments without draft animals, without the wheel, without money, and without a written language. The Spaniards found their gold but they also found and brought back things, then unknown in Europe and Asia, which since then have been of more value to us than the gold--iron, beans, squash, potatoes, tomatoes, chocolate, and strawberries to mention a few.

Surely, the discovery of the New World must be rated as one of the most important events in the story of man's progress in his ability to satisfy his basic needs.

13. Another change which had a great effect on industry was the industrial revolution which began in the latter part of the 18th century. Before that time, change had been very slow. Progress proceeded at a very leisurely pace. Then suddenly in a few years time the towns became large cities, the small shops were replaced by sprawling factories, muscle power gave way to steam and water power, and skilled craftsmen were replaced by machines.

A series of inventions which started in England sparked three changes. The first of these was Hargreaves' spinning jenny in 1767. With it one man could spin eight threads at a time instead of one. When water power was used to drive the machine and more spindles were added, a great deal more thread could be produced. In 1769 James Watt invented the steam engine which could be moved wherever power was needed and didn't have to be near a stream. As men turned their minds to the problems of production and began to apply the scientific method to them, all branches of industry improved and began to turn out more and better products. The use of fertilizer, the steel plow, and the reaper are examples in agriculture. The open hearth furnace and the Bessemer converter made steel much cheaper and better. The steam engine applied to transportation speeded up getting of raw materials to the factories and furnished goods to markets.

The results were both good and bad. One good result was that goods became more plentiful and much cheaper. Standards of living were raised because more people could have more things and did not have to work so hard for them. A bad result was that the stable way of life which had developed during the "Middle Ages" was broken up. Craftsmen in their small shops could not compete with the machines and were thrown out of work. Farmers had to leave their small farms as machines took over. These people were crowded into cities and sought work in factories or mines at very monotonous work. Child labor became common. Poverty and wretchedness prevailed. Because there were no laws to protect the poor people, their condition grew steadily worse. Governments were reluctant to change things because of the pressure of people who were growing wealthy by the factory system. Eventually, in 1824, a law passed in the English Parliament making it legal for workers to organize. The labor unions which followed this gradually were able to get changes which improved the lot of the working man.

Modern mass production of the 20th century grew out of the industrial revolution. Many ideas and inventions have helped make our factories very efficient at reducing the number of man hours needed to produce a product. Several stand out, however. One was that of having interchangeable parts. This in turn depended on accurate measurements and wasn't possible before close tolerances could be maintained. Another was the running assembly line which brought the work to the worker rather than requiring the worker to move about. A third was time and motion study which eliminated waste motions. In recent years automation has taken over many of the monotonous jobs in factories. This further reduces costs and frees workers for other pursuits. Because America has pioneered in mass production and has abundant resources, we have a very high standard of living. Other nations have seen this and are learning our methods so they can do the same for their people. A second industrial revolution is taking place.

Modern mass production.

LEVEL II
UNIT FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this unit, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor________________________ Date________________

Unit Number__________ Date Started__________ Date Completed__________

1. The approximate time spent in laboratory was_______%.

2. Generally, this unit was found to be (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain________________
____

3. The general unit objectives were (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ impossible to meet, (e) ☐ too broad, (f) ☐ too restrictive. If (c), (d), or (e) explain________________
____

4. Generally, the activities were found (a) ☐ adequate, (b) ☐ not suited to the lesson(s), (c) ☐ not enough of them. If (b) or (c) explain_____
____

5. The student booklet (a) ☐ provided enough background reading for the students, (b) ☐ should have contained more information, (c) ☐ did not fit together with the lessons. If (b) or (c) explain________________
____

6. The instructional media for this unit was generally (a) ☐ effective, (b) ☐ ineffective.

(Be sure to fill out the items on the reverse side.)

7. Did you make any changes in the lesson sequence or contents in this unit?

(a) ☐ yes, (b) ☐ no. If you checked (a), please describe the changes.

____

____

8. Give a general summary of your feelings about this unit. Include the strong and weak points you found.

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LEVEL I - American Industry
UNIT III - Organizing An Enterprise
Introduction

Stout State University
October, 1967

I. General Objectives

This unit is the beginning of a sequential study of the thirteen basic concepts of American Industry. In Units III, IV, and V an individual study of each concept area and its relationship to other concepts will be made.

In this unit the following concepts will be studied based upon the theme accompanying it.

A. Communication: Communication is the act of conveying ideas by means of signs and symbols for the purpose of affecting behavior. In order to carry on business an enterprise finds need to communicate with employees, other enterprises, the government, and many others. They communicate in many ways. Various signs and symbols such as pictures, drawings, and words are used in getting messages from one person to another. These, combined with others, are often used to form a complete communication system.

B. Research: Research is defined as a systematic and unbiased investigation of a problem in order to discover facts or principles.

In the systematic approach to research the first step is to define the problem. Possible solutions (hypotheses) are identified and through planned activity the hypotheses are given a fair evaluation in an effort to find the solution.

C. Management: The guiding and directing of all industrial activities in the most efficient manner is the definition of management. Regardless of whether the enterprise is large or small the concept of management may be applied. Each enterprise must be concerned with planning, and improvement of these plans. By developing plans and procedures an enterprise will operate more efficiently.

D. Finance: Funds are essential to operating an enterprise. In this concept area we are concerned with the considerations and techniques involved in procuring and controlling the funds needed to develop an understanding of the ways in which an enterprise determines the need for and amount of money required in order to operate.

E. Property: The concept of property includes the holdings or possessions of an enterprise upon which a dollar value may be placed. The classification and types of property along with property planning should lead to a general understanding of property. A study of the life cycle of property is continued by studying property maintenance, control, and finally property disposition. A conceptual approach to the area of property should include the relationship of this area to other concepts of American industry, plus the application of this concept to the enterprises of American industry regardless of their size or products produced.

F. Energy: Energy is simply defined as the ability or capacity to do work. Industry uses many forms of energy that come from various sources. By applying the ability to do work (energy) industry produces goods and services. Application may come through efficient transfer and control of energy. A study of the basic forms of energy and their uses in industry should aid in developing the concept of energy.

II. Activities

The activities in this unit are centered about the concept areas of: communication, research, management, finance, property, and energy. Student activities will involve the relationships of the above mentioned concepts plus the other concepts of American Industry.

III. Evaluation

Evaluation items have been placed at the end of the lessons. When additional items are developed, copies of them should be sent to the American Industry Project.

IV. Instructional Media

Instructional media has been suggested for the following lessons. In some cases the media is optional, therefore, each lesson should be reviewed to determine whether a film or other media will be used.

A. Films:

Lesson	Concept Area
2	Communication Film: Beyond All Barriers.
6	Research.
11	Management.
12	Finance.
16	Property.
21	Energy.

B. Other media.

Lesson	Title
1	OT: Signs and Symbols OT: Attributes of Communication
3	OT: Communication: Sub-concepts
4	OT: Isometric Sketching OT: Isometric Sketching: Size Description
5	OT: Orthographic Sketching OT: Orthographic Sketching: Size Description
6	Bulletin Board Display OT: Research: Attributes Of OT: Learn to Solve Your Problems OT: Stairway to Clear Thinking
8	OT: Stairway to Clear Thinking OT: There is a Lot of Reason in Research
9	OT: Stairway to Clear Thinking
10	OT: Management OT: Management: The Attributes Of OT: Corporation OT: Partnership OT: Individual Proprietorship
12	Acetate for OH Projector
13	OT: Finance: Need OT: Finance: Quality Control OT: Finance: Source OT: Finance: Cost
14	OT: Finance: Need OT: Finance: Quality Control OT: Finance: Source OT: Finance: Cost

Lesson	Title
16	OT: Property OT: Property: Classification OT: Property: Planning OT: Property: Control OT: Property: Maintenance OT: Property: Disposition
19	OT: Energy
20	OT: Energy: Transformation Of
21	Bulletin Board Display

LEVEL I - American Industry
UNIT III - Organizing An Enterprise
Unit Layout

Stout State University
Summer, 1967

Lesson No.	Periods Required	Concept Area	Lesson Title
*1	1	Communication	Introduction to Communication
*2	1	Communication	Importance of Communication
*3	2	Communication	How We Communicate
4	3	Communication	Isometric Projection as a Form of Graphic Communication
5	1-2	Communication	Orthographic Projection as a Form of Graphic Communication
*6	1	Research	Introduction to Research
*7	3	Research	Research Must Give Appropriate Attention to All of the Factors That Might Influence a Solution
8	2	Research	Each Possible Solution to a Problem Has to be Given a Fair Evaluation
9	2	Research	Planning Research
*10	3	Management	Introduction to Management
11	2	Management	Applying the Concept of Management
12	1	Management	Getting a Job
*13	2	Finance	Introduction to Finance
*14	3	Finance	An Enterprise Must Finance Its Needs
15	3	Finance	Applying the Concept of Finance

Lesson No.	Periods Required	Concept Area	Lesson Title
*16	2	Property	Introduction to Property
17	2	Property	Location and Layout are Important to a Business
18	1	Property	Preserving the Value of Property
*19	2	Energy	Production of Goods and Services Requires Energy
*20	2	Energy	Transforming Energy Into Work
21	1	Energy	Sources of Energy

*Suggested lessons for an eighteen week course.

LEVEL I - American Industry
UNIT III - Organizing An Enterprise
Lesson 1 - Introduction to Communication (1 period)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Define communication in his own words, the definition including these attributes: (1) convey ideas; (2) uses signs and/or symbols; (3) affects behavior.

II. Scope

This lesson provides the means for introducing the concept area of communication and the development of the attributes indicated in the definition.

III. Resources

A. Instructional media

1. OT: Signs and Symbols.

2. OT: Set depicting Attributes of Communication.

B. Literature

1. Student booklet, Organizing An Industry, pages 55-60.

Assign outside reading the day before this lesson is to begin. A study guide developed by the instructor to use with reading assignment may be helpful.

IV. Content Outline

A. Introduction

In life and in business it is necessary to understand one another. In order for industry to operate effectively, man must be able to exchange information accurately and in detail. We must be able to communicate!

But what is communication and how does it take place. Let's see if we can build some common understandings as to what communication is.

For the next half hour you are going to take part in several short activities. Do exactly as you hear, see, or read to do.

B. Activity and content

1. Activity #1

Activity #1

Following instructions.

a. Preparation: Pass out two sheets of paper to each student.

b. The presentation:

(1) Write instructions on chalk board for student to:

(a) You will have five minutes to do the following.

(b) Write name in lower left-hand corner.

(c) Write address in upper right-hand corner.

(d) Draw a simple industrial product in the center of the page.

(2) After five minutes:

(a) Motion for two students to come to the front of the room.

(b) Instruct one to collect the drawings.

(c) Instruct the other to set up the opaque projector.

(If opaque projector is not available, have students exchange papers.)

(3) View sketches:

(a) Check placement of written information to see if your idea or message was conveyed.

(b) Have students determine what the sketches represent to determine if the students' messages were conveyed.

(4) Discussion:

(a) Ask student why he wrote his name in the lower left-hand corner and his address in the upper right-hand corner.

Answer: Written directions said so.

(b) Why did students come to the front of the room?

Answer: They were instructed through a gesture.

(c) Why did they collect the papers and set up the projector?

Answer: They were verbally instructed to.

(d) All of you did what you did because of what I said or did. What act was I performing when I wrote on the board, motioned with my hand, and spoke to you?

Answer: Giving instructions, conveying a message or idea, etc.

(e) What about the sketches you made, what were you attempting to do when you drew them?

Answer: To convey an idea of a certain product by means of a graphic symbol.

(f) What took place when others viewed them?

Answer: They conveyed a mental image of the actual object, assuming the object was effectively represented.

(g) What were the various methods used to convey these messages?

Answer: Verbal, written gestures.

(h) Can we categorize these methods? If so, what will we call them?

Answer: Signs and symbols.

2. Activity #2

Activity #2

Signs and symbols.

a. So far we have established the fact that, in order to communicate, we must use signs and symbols to convey a message. These signs and symbols can take many forms such as graphic, verbal, gesture, etc. and are used in combinations to convey millions of different messages.

b. Now let's try a little experiment. I'm going to project some signs and symbols. When you see them, I want you to identify them and indicate your reaction to them.

c. Project OT ~~series~~, Signs and Symbols. Allow a few minutes for students to react. Show each illustration separately.

OT: Signs and Symbols.

d. Discussion:

(1) Our first sign or symbol represented a telephone booth. Your reaction, assuming you needed to use a phone, should have been to go to one of the three phone booths indicated. Is there anyone who had a different reaction to this sign or symbol? Discuss different interpretations.

Project Illustration #1.

(2) The second sign or symbol indicated a car rental service. Your reaction, assuming you have a need to rent a car, would be to proceed to the car rental service station. What were some other reactions to this particular sign or symbol? Discuss reactions.

Project Illustration #2.

(3) The third sign or symbol could have many and varied meanings and reactions. What are a few of these reactions? Third symbol is a hand with extended thumb.

Project Illustration #3.

(4) The fourth sign or symbol indicates the various reactions and interpretations to words. What are some of the various meanings and reactions to the word twist? Discuss.

Project Illustration #4.

(5) We can see that some signs and symbols convey similar meanings while others convey varied meanings? Why? (Some symbols are used more consistently than others. For example: A hand wave could be a distress signal, a friendly gesture, or a stop motion.)

3. Activity #3

The attributes of communication.

Activity #3

a. Preparation:

(1) Overhead projector.

(2) OT: The Attributes of Communication.

b. Presentation and discussion:

(1) Now let's go back and collect some thoughts about what we have just been discussing. Communication has to start somewhere. Earlier in our discussion I used several methods to communicate with you. I wrote on the board, I talked to you, and I made various motions with my hands. We also looked at some sketches which you made and some other drawings of various items. We had one purpose in mind when we were doing all of these things. What was that purpose?

Project title: "Communication" of OT series Attributes of Communication.

Answer: To convey an idea.

(2) How about those signs indicating car rentals and telephones. What purpose would they serve if they were posted in a building?

Answer: To direct people to the location of the service.

(3) The manager of the building put the signs there for what purpose?

Answer: To convey an idea or message.

(4) By now, based on the activities just completed, you should agree that one attribute of communication is the passing or conveying of a message or idea.

First phase of OT: The Attributes of Communication.

(5) This is indicated by the projected material. We also see an illustration. What message or idea does this illustration convey?

Answer: The welder is working. The time is somewhere between 8:00 a.m. and 12:00 noon or 1:00 p.m. and 5:00 p.m. The welder works from 8:00 a.m. to 5:00 p.m. with a 60 minute lunch hour.

(6) But how is this message conveyed? What common things have we used today to convey a message? I wrote on the board, motioned to some of you, you made sketches, we looked at drawings; what were we using to convey our message or idea, and what will we refer to them as?

Answer: Chalk, paper, chalk board, etc. Referred to as signs.

(7) There are many types of signs. They are quite frequently used in advertising and on our highways. What about the writing or drawings or shapes of these signs? What is conveying the message in this case?

Answer: Symbols.

(8) Now we have another attribute of the communication process; that being signs and symbols. We can convey an idea or message with the use of these signs and symbols.

Second phase of OT: The Attributes of Communication.

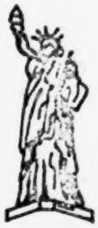
What are the signs and symbols indicated on the projected material, and what do they indicate?

Answer: The signs are the clock and the bell. The symbols are the numbers on the clock and the expression marks around the bell. The clock indicates that it is 5:00. The expression marks indicate that the bell is ringing. This conveys the idea or message that it is quitting time.

V. Evaluation

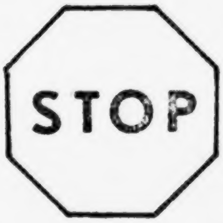
Questions 1-4 consist of four drawings. Study each and then select one of the four listed responses as the most correct answer.

1.



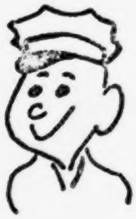
A. Indicates traffic direction
B. Represents South America
C. Deals with marketing a product
D. Conveys an idea (message)

2.



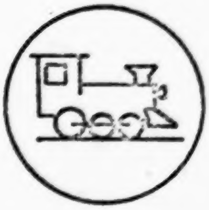
A. Same as "go"
B. Affects behavior
C. Deals with labor
D. Causes accidents

3.



A. Boss fired me today
B. I dislike my job
C. Got a raise in pay
D. My bike has a flat tire

4\.



A. Heavy truck traffic
B. No cars allowed
C. Trucks only
D. Railroad crossing

5. You wave at a friend that is out of speaking range because:

A. You feel a need to exercise your arm
B. You have a feeling to convey
C. You wish to indicate the size of a new hunting knife
D. You are leaving town

6. The principal reads a message over the school intercom because he:

A. Wants to have his voice heard
B. Can not write too well
C. Wants the students to do a certain task
D. Is doing what all principals do.

7. You communicate because:

A. You want to have your ideas known
B. It is a dull life if you never talk
C. You have great skill in the use of the English language
D. All people communicate

8. If you are an architect designing a house to be built by another man or men, how would you express your ideas?

LEVEL I
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor____________________ Date________________

Unit Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________

6. Which activity did you use?____________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain____________________

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made

LEVEL I - American Industry
UNIT III - To Organize An Enterprise
Lesson 2 - Importance of Communication (1 period)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Display an understanding of the importance of accurate communication anytime a message is sent from one person to another.

II. Scope

This lesson provides the means for building an awareness of the need for complete communication if industry is to operate effectively.

III. Resources

A. Instructional media

1. First level film catalog.

2. Film: Beyond All Barriers, Wisconsin Telephone Company Milwaukee, Wisconsin.

B. Literature

1. Student booklet, Organizing An Industry, pages 55-64.

IV. Content Outline

A. Introduction

Civilization requires an increasing amount of communication between persons, between organizations, and between governments. The fields of business and industry are no exception to this trend. Increasing complexities of manufacturing, ownership structure, and the system of laws and taxation demand that efficient methods of conveying a message from one person or organization to another be developed. Many misunderstandings and errors occur in business because the people concerned have not communicated

B. Activity and content

1. Activity #1

Activity #1

Test.

Test to show the students the importance of good communication.

a. Preparation:

(1) Prepare a 10 item true or false test.

(2) Instructions for the test should read as follows: "Place your name in the upper right-hand corner of the paper. Place your answer in the blank provided in front of the question. Use a "+" sign to indicate true and a "o" sign to indicate false. You are not allowed to ask your teacher or neighbor any questions regarding this test.

Begin the test now by reading item number 10."

(3) Item number 10 should read, "Do not answer the above questions, instead turn your paper over and write a note, that you might give to a friend, inviting him to a party."

(4) Item number 9 should read, "Stop here, do not go on to number 10."

b. Presentation:

(1) Today I have a short test for you to take.

(2) I would like to see if you understand the importance of communicating.

(3) There are only 10 questions and they are to be answered true or false. Place your answers on the test sheet.

(4) No talking or looking at your neighbor once I pass out the test sheet.

(5) Keep your paper face down until I tell you to turn them over. (Pass out test.)

(6) You may turn your paper over and begin.

c. Discussion:

(1) Collect test for discussion.

(2) If students failed to read directions and answered all questions, point out such things as wasted effort because of a failure to communicate.

(3) How would the above apply to industry?

(4) If they did answer the questions, were they marked with "+" or "o"?

(5) Some will have received the message and wrote the note. Check to see if they communicated completely by reading some of the notes.

Have the students ask questions about the party such as:

(a) What time does it start?

(b) Is it a dress up party?

(c) Can I bring a friend?

2. Film.

Film

Use a film to show results of good and poor communication in industry.

a. Preparation:

(1) Preview film.

(2) Prepare student introduction to film.

b. Presentation:

(1) Introduce film.

(2) The students are to mentally note the effects of poor communication and/or effect of good communication.

c. Discussion:

Review any highlights of the film the students may have missed.

3. General discussion.

Use to broaden the understanding of the need for good communication.

a. Preparation:

(1) Write down several communication problems that developed during the enterprise. (Activity in Unit I.)

(2) Write down several reasons why good communication is necessary in an operation like Wesley Conners' "Pronto Pre-Fabs, Inc."

(3) Write down several effects of poor communication in school such as the athletic team (quarter-back signals).

c. Discussion:

(1) Discuss how communication plays an important role in the operation of the "Sticker Enterprise" of Unit I.

(2) Draw from the students what would happen in the "Pronto Pre-Fab" enterprise if it did not have ways of communicating between workers.

(3) Draw from students the result of communication breakdown in school. Refer to school activities, class work, and information from the administration office.

C. Conclusion

By now you can see the effects of poor communication. You have experienced or seen how it is the cause of numerous mistakes which lead to wasteful use of our human and natural resources, wasted man power, wasted time, and wasted materials which to industry means a big waste of money.

Industry has a goal to produce with as little waste as possible. Because it wishes to keep the production cost of its goods or services low and perhaps realize a greater profit.

Also because of competition, it is necessary to keep the waste cost down. Thus, good communication is necessary. Therefore, in your student enterprise you must set up a system of good communication. This will take a better knowledge of the ways we communicate. So tomorrow we will study about what is involved every time we attempt to communicate.

V. Evaluation

A. Failure to communicate through written directions can cause:

1. Happiness
2. A job done correctly
3. Business to succeed
4. Errors

B. A lack of complete communication can cause business to:

1. Succeed
2. Expand
3. Fail
4. Make a profit

C. You are an experienced carpenter (woodworker) and you received the following instructions from your foreman, "Build a bird house for Mr. Smith." Do you think you would be able to build the exact bird house he wanted? (Yes or no, explain why you would or would not be able to.)

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages

Instructor________________________ Date________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain________________________
____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain________________________
____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain________________________
____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain________________________
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6. Which activity did you use?________________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
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(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ________________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ________________________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ________________________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ________________________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ________________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ________________________________

I. Objectives: At the conclusion of this lesson the student should be able to:

Identify and use the following in simple forms of communication:

A. An initiator of the act of communication (source).

B. Means by which a message is carried or conveyed (message vehicle).

C. A planned method that may be used in communication (system).

D. An audience which constitutes the target for the message (receiver).

E. Information returned to the source (feedback).

F. Factors that can reduce the effectiveness of the message (interference).

II. Scope

This lesson provides the means to introduce the student to the basic elements of communication, namely: source, message vehicle, system, receiver, feedback, and interferences. This lesson is designed to be taught through a lecture-discussion method. However, there is a list of activities at the end of the lesson to be used, if the time schedule permits.

III. Resources

A. Instructional media

1. OT: Communication: Sub-Concepts.

B. Literature

1. Student booklet, Organizing An Industry, pages 55-60.

2. The Process of Communication by Berlo, Holt, Rinehart, and Winston Publishing Company.

IV. Content Outline

A. Introduction

To date we have learned that communication is the act of conveying an idea through the use of signs and symbols for the purpose of affecting behavior. We also have learned of the importance of good communication.

But what is involved and how does industry communicate? Today we are going to see what is needed in order for communication to take place.

B. Activity and content

1. Where does communication start?

   Answer: A person or individual.

2. Someone has to originate the idea, so let's call him the source. A message or idea starts with a source. (Project OT: Communication: Sub-Concepts base.)

OT: Communication: Sub-Concepts.

3. Why does the source of an idea wish to communicate?

   Answer: Because he has a need.

4. There has to be a source, someone has to send the message and does because he has a need or wishes to share his message with others.

5. Suppose you are the coach of a football team and you (source) have a new play (idea) to teach (convey) to the players. What abilities or characteristics would you need to convey your idea to the team? (Draw the following from the students:)

   Answer:
   a. Ability to speak (has to be understood).
   b. Ability to write (may use chalk board).
   c. Ability to listen and understand (players may ask questions.)

d. Ability to read (find out more about football).

e. Ability to reason (determine why play may not be working).

Speaking, writing, listening, reading, and reasoning are referred to as communication skills. Without these skills the coach would have difficulty teaching his new play, I would have had more trouble telling you how to organize the sticker enterprise of Unit I, and Wesley Conners, manager of "Pronto Pre-Fabs, Inc.," would have problems directing the men who work for him. You take courses in English to develop these skills so you as the source will be able to convey your ideas.

6. Can you think of some other communicating characteristic you may need as the coach of the team?

Answer: Must know and understand the game of football--have a knowledge of the game.

7. The topic of a communication must be well understood by the sender in order to explain it to someone else. I had a knowledge of silk screening, so I was able to teach you how to silk screen your stickers. What type of knowledge do you think Wesley Conners would need if he wished to check to determine if his houses were being built correctly?

Answer: Knowledge of house contruction and blueprint reading.

8. As a source of ideas or direction, what other abilities should you have if you want to be a successful coach?

Answer: a. Ability to formulate or develop ideas.

b. Must be able to encode--change his ideas into a message the players can understand.

Most of all he must know the ability of the people to understand. Is he using words or symbols they know? If not, he would have difficulty conveying his idea. Have you ever experienced teachers using words you did not know? Did you understand their message?

9. Once the source has determined what skills to use and to whom he is communicating, he must decide on a way to convey or carry the message.

Cars and trucks carry products and people; we refer to them as what?

Answer: Vehicles

10. In terms of carrying a message, let's refer to the ways as message vehicles. (Project OT: Communication: Sub-Concepts first overlay.)

These message vehicles are used in conjunction with some planned method or system of communication. (Project OT: Communication: Sub-Concepts second overlay.)

OT: Communication: Sub-Concepts.

11. Message vehicles can be grouped into four types:

a. Solid: Paper used in a letter, etc.

b. Fluid: Bubble in a carpenter's level, thermometer, and air (gas) carries human voice.

c. Electromagnetic: Radio does not need medium to transmit message but uses wave variations.

d. Electric: Carries message by movement of electrons along a conductor (telephone, intercom, P. A. system, etc.).

12. The system has several channels in which the message may move.

a. Electrical: This channel includes radio, television, telephone, etc. and this message is transmitted by an impulse signal.

b. Graphic: Uses symbols and lines to produce drawings, pictures, books, etc. for the purpose of moving a message.

c. Mechanical: A way to transmit a message which does not utilize electric or graphic means (hand signals, etc.).

d. Fluid: A liquid or gas that allows a message to move.

e. Human perception: A way to transfer a message through the medium of the human senses.

(1) Light--eyes.

(2) Hearing--ears.

(3) Taste--tongue.

(4) Smell--nose.

(5) Touch--physical contact.

13. When more than one channel is used we have a network system such as a computer-graphics.

14. If man is to convey a message he must have a receiver, a person or audience whom the message is directed to. (Project OT: Communication: Sub-Concepts third overlay.)

OT: Communication: Sub-Concepts.

15. The receiver must have certain characteristics or abilities that affect the receiving of a message.

16. Like the source, the receiver must have communicating skills and knowledge of the subject being conveyed. Refer to the first part of the lesson dealing with communicating skills of the source. Point out that in order to communicate the receiver must have some level of skill development.

17. The receiver must be able to decode and interpret a coded message (refer to waitress example on page 59 of the student booklet). (Diagram a football play on the chalk board.)

18. Can anyone describe the football play on the board? (Will show the need for a receiver to be able to decode and interpret a message.)

19. How does the source of an idea determine or know if he has communicated with the receiver?

a. How can the coach determine if he has conveyed the idea of a new play to his players?

Answer: Players run the play correctly.

b. How would the waitress know if her coded message to the cook is received?

Answer: She would get the right order.

c. How would the architect know if he conveyed his idea of a modern building?

Answer: The building being built according to his drawings.

19. When people receive a message they react in a certain way. The type of reaction will tell how well the message was received.

20. This reaction is referred to as feedback. (Project OT: Communication: Sub-Concepts fourth overlay.)

OT: Communicati n: Sub-Concepts.

21. Now there remains one thing that affects our whole method of communication. Many times something takes place that makes the receiving of a message difficult.

22. What happens when you try to listen to the radio during an electrical storm?

Answer: Static.

23. Can you always hear me if your neighbor is talking to his neighbor at the same time or if a machine in the next room is making a loud noise?

Answer: No, because there is too much noise.

24. What would happen if I tried to show you a film with the window shades up and the lights on?

Answer: Film would be hard to see.

25. Thus based on the above examples, what is it that affects the reception of a message?

Answer: Interference.

(Project OT: Communication: Sub-Concepts fifth overlay.)

OT: Communication: Sub-Concepts.

C. Conclusion

Let's review the process of communication.

1. In order to have communication there has to be a message source. (Ask students what skills are needed by a source trying to convey an idea.)

2. The message has to be carried by some means of a message vehicle. (Ask students for the type of vehicles and examples of each.)

3. The message vehicle passes through a planned channel system. (Ask students for type of channel systems.)

4. The message on a message vehicle, passing through a system, will reach a receiver. (What skills are needed by the receiver?)

5. The message source can tell to what extent his message has been received by the reaction of feedback from the receiver. (Ask for examples of feedback.)

6. Many times there are outside conditions that affect the process of communication known as interference. (Ask students for type of interference and examples of each.)

V. Evaluation

A. Match the words on the right with the item on the left. Some words in the right column may be used more than once.

_____ 1. Information returned to the source.
_____ 2. Graphic.
_____ 3. Ability to write.
_____ 4. Factors that can reduce the effectiveness of the message.
_____ 5. Printing.
_____ 6. Room noise.
_____ 7. An initiator of the act of communication.
_____ 8. Means by which a message is carried or conveyed.
_____ 9. Wire.
_____ 10. A planned method that may be used in communication.
_____ 11. Telephone.
_____ 12. An audience which constitutes the target for the message.
_____ 13. Finished product.
_____ 14. Be able to read blueprints.

a. Source
b. Message vehicle
c. System
d. Receiver
e. Feedback
f. Interference

B. You are the designer of a product and wish to express your ideas to the management of a company; your goal being to have them accept the idea and produce it.

1. As the source of the message, what abilities do you need to express or convey your idea to the management?

2. What form of message vehicle or carrier would you use?

3. What system or form would you use to express your ideas?

4. In preparing your message, what things might you consider about the receiver to be sure he will understand your message?

5. What forms of interference could be present that would interfere with your message being received?

ACTIVITIES

1. Prepare a tape recording instructing the students to perform a certain task. Narrate the instruction so that they are hard to follow: Speak above the level of the students, speak poorly, poor order to instruction, etc. Record different types of noise interference into tape also.

   Use this activity to discuss problems a message sender and receiver have to contend with. Also to point out a type of message vehicle, system, feedback, and causes of noise interference.

2. Have an example of each type of message vehicle and discuss how each carries out its role as a message carrier.

3. Set up and demonstrate a telegraph key and receiver. Point out the need for the sender to be able to encode and for the receiver to decode. Compare this to the teletype. Discuss type of system used (channel, network, etc.).

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

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If you need more room for comments, attach additional pages.

Instructor________________________ Date________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)______

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain________________

____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain________________

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4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain________________

____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain________________

____

6. Which activity did you use?________________

The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items________________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain__________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain______________

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10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references______________

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11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor____________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made__________________________

____

LEVEL I - American Industry
UNIT III - Organizing An Enterprise
Lesson 4 - Isometric Projection As A Form of Graphic Communication (3 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

A. Construct a pictorial sketch following the principles of isometric projection.

B. Describe the size of an object by means of dimensions.

C. Identify materials needed for construction.

II. Scope

This lesson will provide the means for a student to develop his ability to communicate graphically through the use of pictorial sketches.

III. Resources

A. Instructional media

1. OT: Isometric Sketching.

2. OT: Isometric Sketching: Size Description.

B. Literature

1. Drafting textbook explaining the procedure of developing an isometric sketch.

IV. Content Outline

A. Introduction

Earlier we have seen how man communicates with man. The basic ideas of source, message vehicle, systems, receiver, feedback, and interference are always present. Today we are going to take a deeper look at one particular system that may be used in communication.

One of the most common systems or planned methods used in communication is the use of pictures (or graphic communication). There are many ways of providing pictures of things or ideas--cameras, paintings, printing, engraving, and drawing with a pencil to name a few. Drawing pictures with a pencil on paper is probably one of the simplest, most common, and most generally useful forms of graphic communication available. In industry the drawn picture is frequently seen in the drafting, engineering, and sales departments where the communications system is based on the principle of the drawn picture. Whether in industry or out the most functional form of graphic communication is the sketch, which is simply a picture drawn on paper with no other aids. All manner of people in industry use these sketches--managers, engineers, illustrators, publishers, sales people, machinists, scientists, and farmers.

Since sketching is important to industry as a means of conveying an idea, and since you are going to become a part of industry, it is important for you to be able to sketch and interpret one.

B. Activity and content

1. Activity #1

Isometric sketching.

Activity #1
OT: Isometric Sketching.

Use the overhead transparency, Isometric Sketching, to develop a low level of understanding and skill of isometric sketching. The transparency consists of a base sheet and four overlays which, when used in numerical order, build up an isometric drawing of a soda pop carton.

a. Preparation:

(1) Have the students sketch along with you as you explain the principles of isometric drawing. The student may use a plain sheet of paper or isometric grid paper if it is available.

(2) NOTE: Remember you are interested in having the students convey an idea using a graphical method, not in drawing pretty pictures.

b. Presentation:

(1) Let's begin and see if we can communicate an idea graphically using pictorial sketching. By pictorial, I mean drawing as it would appear in picture form. (Pass out paper.)

(2) You use your paper and I'll use the overhead projector to show you how to proceed.

(3) Divide your paper in half with a line, so you can put two sketches on the same side.

(Project OT: Isometric Sketching base--illustrates the three isometric axis.)

OT: Isometric Sketching.

(4) Before you start to draw, let's look at what we have here. Note that there are three lines in this view (point out). These lines are referred to as the isometric axis. They are the base from which we will develop all pictorial sketches. But what does "isometric" mean? Well, the first part "iso" comes from the Greek language and refers to things being equal and the last part "metric" refers to measurement. Put it together and we have "isometric" meaning equal measure. Now if you look at our transparency (point out) you will notice that the angles between the three axis are equal. Also note that the two receding axis are drawn at 30 degrees to a horizontal line--again we have equal measure. Since this type of drawing is laid out with equal angles, it is referred to as isometric drawing.

(5) Now begin your sketch by drawing a horizontal line about one third from the bottom of the paper.

(6) Next, draw the vertical line, the line that is straight up or down, about _____ inches long. Place it about an inch to the left of the center of the drawing area. I will point out later why I am having you draw this line a certain length and in a certain place.

(7) Now draw the receding axis. Estimate the 30 degrees angles, but try to make them equal. These lines will represent the base of a box. Draw the right one about _____ inches long and the left one _____ inches long.

(8) All objects have width and length so indicate it on your sketch by placing two more vertical lines as indicated by this overlay.

(Project OT: Isometric Sketching first overlay.)

OT: Isometric Sketching.

These lines must be drawn the same length as the first vertical line.

(9) At this point it becomes necessary to give the object a top.

(Project OT: Isometric Sketching second overlay--showing addition of top surface.)

OT: Isometric Sketching.

Notice now that the object on the screen has a top.

(10) When you draw in the top lines, be sure to keep the line parallel with the opposite line already on the paper.

(11) It is better if you draw the front two lines first, then complete the back two lines.

(12) Is your drawing complete now--does it convey an idea?

Answer: Yes, it tells the shape of an object, box, etc.

(13) Yes, your sketch conveys the idea of a box. Boxes we know are used as packaging containers for all sorts of objects. But let's suppose you are now responsible for designing a packaging container that has to hold six pop bottles for marketing.

This would involve more than just a box. You would want part of the bottles to show for marketing and, of course, the bottles could not be allowed to strike one another for fear of breakage. Right away you think of the present soda pop carton. Can you convey the idea of the carton?

(Project OT: Isometric Sketching third overlay.)

OT: Isometric Sketching.

Now you can see how our box can be converted into another object.

(14) Everytime you try to convey an idea by means of pictorial sketching you should complete the box first because accuracy of the remainder of your sketch depends on the box. Note how the lines of the box become part of the pop carton.

(15) Lines within the box can be referred to as details of an object.

(16) Add these detail lines to your sketch. Remember to keep equal angles and opposite lines parallel. (If necessary point out on the transparency how to locate the detail lines.)

(17) So far you have been sketching using all isometric lines, equal angles. Sometimes it becomes necessary to draw lines at different angles. These lines are referred to as non-isometric lines.

(Project OT: Isometric Sketching fourth overlay--showing handle of carton involving non-isometric lines.)

OT: Isometric Sketching.

Note the handle of the carton--it has no isometric lines.

(18) Sketch in the non-isometric lines of the handle. Note in locating ends of a non-isometric line, always measure along an isometric line, as the ends of a non-isometric line must be located along isometric lines (point out).

(19) Once you have all the details drawn, go back and darken all the lines that convey the idea of a soda pop carton.

2. Activity #2

Isometric sketching and dimensioning.

Activity #2

a. Sketching problem:

(1) Have problems for student to sketch.

(2) Problems should be simple, but contain both isometric and non-isometric lines.

(3) The milk carton is suggested here as an example.

b. Preparation:

(1) Have a milk carton to display before the class.

(2) Have students draw sketch on other half sheet of paper opposite pop carton.

c. Presentation:

(1) Isometric sketching of a milk carton.

(a) Now I want to see if you as the source can communicate an idea in graphic form by developing a pictorial sketch of this milk carton (hold up carton for students to see).

(b) Remember to begin by laying out the isometric box, keeping in mind the overall size of the object.

(c) Note that this milk carton is about _____ times as high as it is wide and that its depth is the same as it is wide.

(d) Do not sketch it to appear wider than it is tall, etc. In other words make it appear as it will in true life.

(e) Remember back when you started to develop the pop carton sketch. I told you to make the base layout lines a certain length. Well, I was laying out the size of the object, with regards to proportions, for you. The carton had to appear to be a certain width as compared to its depth and height.

(f) The shape or proportion of your sketch must be accurate if you are to truly convey an idea.

(g) Continue to work on conveying the idea of a milk carton.

(h) Add the detail lines.

(i) When you are finished, look to determine if you have conveyed the idea of a milk carton. Check on the proportions, do they appear as in true life? (Display milk carton again.)

(j) If the proportions are not close to true life, you have a form of interference in that your idea will not be received as you wish it to be.

(k) At this point, have we really communicated a complete idea? (Lead the students around to answer: No, only identification of an object and its shape--proportions--have been communicated.)

(2) Dimensioning an isometric sketch.

(a) Now that you have completed the isometric sketch of the milk carton, I want you to make a carton.

(Hopefully, you will have a student or students that might ask you how big to make it or of what material to construct it. This will give you an ideal lead-in to the necessity for size description.)

(b) (Project OT: Isometric Sketching: Size Description base.)

OT: Isometric Sketching: Size Description.

The base sheet shows the completed soda pop carton drawn isometrically. If we or anyone else were to make this item, we would have to know what size to make it. In drawing, we call this dimensioning and we use two kinds of lines to do this. (Use the chalk board to show the use of extension and dimension lines. Be sure to point out that extension lines do not touch the lines that form the object.)

(c) In dimensioning any object you always put on the small dimensions or detail dimensions first and all extension and dimension lines are parallel to one of the three isometric lines.

(Project OT: Isometric Sketching: Size Description second overlay--point out all of the points you have just discussed.)

OT: Isometric Sketching: Size Description.

(d) Now that we have all of the detail dimensions placed properly you put on the remaining overall dimensions.

(Project OT: Isometric Sketching: Size Description third overlay.)

OT: Isometric Sketching: Size Description.

Now, when you feel you have completed the dimensioning ask yourself if there are enough dimensions to make the object.

(e) Now take your isometric drawing of the milk carton and dimension it according to the procedure just discussed.

C. Conclusion

Graphic communication is basically a system of conveying an idea from the source to the receiver by use of pictures impressed on a message vehicle, the most common vehicle being paper. The graphic method may be printing, photography, painting (art), and drawings. The art of drawing a picture on paper without the aid of mechanical device is called sketching.

Sketching is common in industry and incorporates the use of signs and symbols to make the message more meaningful. The way in which a sketch is drawn also aids in conveying an idea. This lesson delt with pictorial sketching, which is sketching in picture form or as it would appear in a picture. This involved illustrating a one view drawing showing three sides of an object. Isometric is one form of pictorial sketching and deals with the use of equal measure when developing the drawing.

It must be kept in mind that sketching is just one method of graphic communication and that graphic communication is only one of several systems used in communicating. Other systems would be electrical, mechanical, fluid, and human perception.

1. Who or what was the source of the milk carton drawing?

   Answer: We the students or draftsmen.

2. What form of message vehicle was used?

   Answer: Solid--paper.

3. What channel system was used for message passages?

   Answer: Graphic.

4. Who was the receiver of the message?

   Answer: Other students.

5. How could you tell the message was received--what type of feedback did you get?

   Answer: Understood drawing or drawing was hard to read.

6. What forms of interference were present in trying to convey the idea of a milk carton?

   Answer: Poor drawings, etc.

V. Evaluation

A. Using isometric projection, sketch your idea of a shoe box. Be sure to communicate a complete idea!

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor________________________ Date______________

Unit Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain________________
____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain________________
____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain________________
____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain________________
____

6. Which activity did you use?________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

LEVEL I - American Industry
UNIT III - Organizing An Industry
Lesson 5 - Orthographic Projection As A Form of
Graphic Communication (1-2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

A. Construct a three view sketch following the principles of orthographic projection.

B. Describe the size of an object with the use of extension and dimension lines.

C. Indicate materials needed for construction purposes.

II. Scope

This lesson provides the means for a student to develop his ability to communicate graphically through the use of orthographic sketching.

III. Resources

A. Instructional media

1. OT: Orthographic Sketching.

2. OT: Orthographic Sketching: Size Description.

B. Literature

1. Drafting textbook explaining the procedure of developing an orthographic sketch.

IV. Content Outline

A. Introduction

When you were sketching isometrically, you were communicating. You found that you were able to communicate or convey an idea by a pictorial means. Industry is constantly using drawings to convey ideas. As a matter of fact drawing is an international language. We may not be able to speak or understand a foreign language, but if we could draw a picture of a familiar object, we could communicate.

Industry has, however, developed a different method of drawing. It is called orthographic projection. This type of drawing has enabled man to communicate the most complex ideas for machines and products that you can imagine. Let me show you how they do it. I'll use the soda pop carton again, only this time I'll use orthographic projection.

B. Activity and content

1. Activity #1

Activity #1
OT: Orthographic Sketching.

Orthographic sketching.

Use the overhead transparency, Orthographic Sketching, the base sheet showing an isometric sketch of the soda pop carton in the upper right-hand corner, an arrow to show the direction of sight and a completed front view of the object. You may want to cover the front view while discussing the direction of sight or the observer's point of view.

a. We'll start with an isometric view of the pop carton. Notice the arrow, this indicates the point of view or your direction of sight. Now imagine this is where you are looking at the carton. You draw just what you see.

(Uncover the completed front view.)

This is what you will see. This is the complete view of the object as you see it from this position. We can call this the front view. Notice the dashed lines in this view. This indicates that there is a surface here but it is hidden from our view. The hidden surface must be shown in a drawing of this type for location purposes, and they are always represented in this manner, with a dashed line.

b. Now imagine that you are suspended in space directly above the object and looking straight down at it. This is what you would see.

(Turn over third overlay.)

Notice the arrow on the isometric drawing which again shows your direction of sight. We can call this view of the object the top view. We may find that these two views can completely describe the shape of the object, however, let's make a third view just to see how it is done.

c. (Turn over second overlay.)

This is a complete view of the soda pop carton from this position (point out the direction of sight shown on the isometric drawing). This view can be called a side view. Now let's analyze the position of the views--front, top, and side. Notice a detail in the front view lines up with that same detail in the other views. (Use a grease pencil and draw construction lines from the front to the top views and from the front to the side views.) When you make an orthographic sketch be sure that details line up from one view to another. If they don't you can get very confused attempting to read this type of drawing. These three views constitute what we call the principle views--front, top, and side.

d. Actually, it is possible to view the object from an infinite number of positions. However, the rule is to choose the views that best describe the shape.

e. Now, I want you to make an orthographic drawing of the milk carton. You really don't need to make three views but let's do it just for practice. Draw a front, top, and side view of the carton just as I did with the pop carton.

2. Activity #2

Orthographic sketching and dimensioning.

Activity #2

a. Now that you have completed the orthographic sketch of the milk carton, you still need more information than just the shape as we saw when we made the isometric sketch. We must now completely describe the size of this object.

b. As you recall, we used two kinds of lines--extension and dimension. Now the same rules can be applied to dimensioning an orthographic drawing as we used in dimensioning the isometric. Your detail dimensions are put on first.

c. (Project OT: Orthographic Sketching: Size Description base showing the completed three view orthographic sketch.)

OT: Orthographic Sketching: Size Description.

Here I have the completed three view orthographic drawing of the pop carton.

(Turn over second overlay.)

Now you see that the detailed dimensions are in place. But notice that we now have to make a choice of which view to place them on. Well, just ask yourself which view best describes the shape I am trying to dimension, and that is where you place it. Also, try to dimension off of the view. If we were to place all of the dimensions on the view itself, it would become confusing and difficult to read.

(Turn over third overlay.)

Your next step is to place the overall dimensions such as you see here. Now take your orthographic drawing of the milk carton and dimension it completely.

(When the students have completed the activity, you may want to suggest noting what type of material it is to be made of and specify it on their sketch.)

C. Conclusion

A pictorial drawing of an object is most often the best type of drawing to convey an idea. However, many drawings of machines, etc. of industry are very complex, with many detail lines, making an isometric drawing very difficult to do. Therefore, industry also uses orthographic projection as a type of drawing. It differs from isometric projection in that it is laid out with right angles and lines perpendicular to the base or plane of projection, as opposed to angles of the isometric axis. This type of drawing lends itself better to drawings that must contain many detail lines. It generally consists of three views, each view representing a different surface of the object being drawn. Isometric, you remember, is one view showing three surfaces together as they would appear in a picture or true life.

Again, it must be pointed out that sketching (drawing), whether isometric or orthographic, is just one method of graphic communication and that graphic communication is only one of several systems used in the whole of communications. Can you name other systems discussed in earlier lessons?

V. Evaluation

A. Using orthographic projection, sketch your idea of a shoe box. Be sure to communicate a complete idea!

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

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Instructor____________________ Date________________

Unit Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain________________

6. Which activity did you use?________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain________________

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ______________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ______________________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ______________________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ______________________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

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13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______________________________

LEVEL I - American Industry
UNIT III - Organizing an Enterprise
Lesson 6 - Introduction to Research (1 period)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to define research in his own words; the definition includes these attributes:

A. Systematic.

B. Unbiased.

C. Investigation.

D. Based on a problem.

E. Discover facts or principles.

II. Scope

This lesson provides the means for introducing the concept area of research and the development of the attributes indicated in the definition.

III. Resources

A. Instructional media

1. Bulletin board (select news stories and pictures which depict the attributes of research and its importance in industry).

2. First level film catalog.

3. OT: Research: The Attributes Of.

4. OT: Stairway to Clear Thinking.

B. Literature

1. Student booklet, Organizing an Industry, pages 1-8.

2. Research in Industry by Miles, McGraw-Hill Publishing Company.

3. Improving the Effectiveness of Research and Development by Seiler, McGraw-Hill Publishing Company.

4. Business Week, section on research.

IV. Content Outline

A. Introduction

Once upon a time, so long ago that no one knows quite for sure exactly what happened, a villager whom we shall call Jojo lived in a thatched hut in the jungle. He was rejoicing because his prize sow had just farrowed a fine litter of pigs. In his excitement, he ran out to tell his neighbors the good news forgetting to check the fire which was smouldering in one corner. At any rate, a spark must have ignited the hut for it burned down with the litter of pigs inside. When Jojo returned, all that remained was a pile of smoking embers. Grief stricken, he reached out thoughtlessly to touch them. The hot flesh burned his fingers and he instinctively put them into his mouth to cool them with some of the flesh sticking to them. For the first time, a human being had tasted roast pork. It was delicious. Again and again Jojo plunged his fingers into the hot flesh until it was all consumed. After that, everytime the sow farrowed, Jojo's hut would burn down. The other villagers noticed this, became curious, and soon discovered what was happening. Soon their huts began to burn. This situation continued until some enterprising villager discovered that fire could be used for roasting pork without burning down a hut. (From Charles Lamb's Dissertation on Roast Pig.)

This story illustrates the basic idea of the unit which we are now starting. It is the idea of improving something, obtaining answers for problems, or of getting a new idea started. It is concerned with obtaining the best answer to a problem. In other words, it is concerned with finding out what's cooking rather than accepting whatever comes along. In American Industry, we call this research--a systematic and unbiased investigation of a problem in order to discover facts or principles.

Research is so important to industry that it spends over 20 billion dollars a year to find answers to many problems. Why? First, competition forces industry to keep moving forward if it is to survive. You have heard of the "race for space," in which we are competing with Russia to master the problem of controlling outer space. Second, changes in the wants of consumers require that industry change to meet these needs. A few years ago the auto industry did this by producing the "compact" car. People wanted a small car, thus, the compact car was a success. Third, our rapidly advancing technology (knowledge) provides new materials and processes, which make new products or services possible. Examples of these are the new felt tip pens and the drive-in banks. Today, as we progress, try to pick out major characteristics of research.

B. Activity and content

1. Activity #1

Activity #1

First level film catalog, Research. (An equivalent film may be used. If a film is not available, use pages 1-8 in student booklet, Organizing an Industry, to bring out these ideas.)

a. Preparation:

(1) Preview film.

(2) Note high lights of film that depict the attributes of a research.

b. Presentation:

(1) Have students take notes on:

(a) Why industries conduct research (problem involved).

(b) The method used to conduct research (systematic investigation, unbiased).

(c) Results of research (facts or principles discovered).

c. Discussion:

(1) What common thing is involved in research?

Answer: A need to find answers to a problem. A problem is involved.

OT: Research: The Attributes Of.

(2) (Project OT: Research: The Attributes Of window #1 without overlay.)

What is the purpose of industry researching a problem?

Answer: To discover facts or principles about the problem.

(Project window #2.)

(3) How does research obtain answers to problems?

Answer: By searching, experimenting, observing, or investigating the problem.

(4) Was there a method or procedure used in conducting their research? What type of procedure is involved?

Answer: Yes, methodical, efficient, orderly, and complete (systematic).

(Project window #3.)

(5) In order to arrive at the best possible solution, the investigation has to be unbiased.

2. Activity #2

Scientific method of research.

Activity #2

a. Preparation:

(1) OT: Stairway to Clear Thinking.

(2) Review research conducted in Unit I enterprise.

b. Presentation:

(1) Have students write down types of research conducted in Unit I enterprise; such as market research, product research, etc.

(2) Have them select one type of research conducted and list how they carried out the research (steps involved).

c. Discussion:

(1) Can you recall if we conducted some type of research in our Unit I enterprise?

Answer: Yes, market research, product research, etc.

(2) Let's consider the market research. What was the problem?

Answer: We wanted to know if the product would sell and how many we could sell.

(3) Right. This was our need for research.

(Project first step of scientific method.)

OT: Stairway to Clear Thinking.

(4) Now whenever we conduct research we are involved in collecting data. This collecting of data, information or facts, is a continuous process throughout the research.

(5) How did we obtain information or facts related to our problem (need)?

OT: Stairway to Clear Thinking: Information.

Answer: Discussed in class the various factors that might affect sales--age and sex of the buyer, quality of the product, extent of the need for the product, cost of the product, etc.

(6) Next we selected a tentative solution to our problem (if you had more than one solution include the others also). A special term for this type of solution in research is hypothesis. (Use the product(s) selected for the market research phase to illustrate how it is related to the several aspects of the problem noted in Step 5 above.).

OT: Stairway to Clear Thinking: Form Hypotheses.

(7) How did we know if our hypothesis was correct?

OT: Stairway to Clear Thinking: Test Hypotheses.

Answer: Carried out a market survey.

(8) How was information obtained in the survey?

Answer: Developed a questionnaire and had several students, salesmen, conduct the survey contacting a sample of the possible customers.

(9) How did we know whether to produce (product) and how many to produce?

OT: Stairway to Clear Thinking: Information.

Answer: Took the facts from the survey and assumed that they would be true for all the people we would make a sales contact with.

(10) Correct, on the basis of the test of our hypothesis we came up with a solution to our problem.

OT: Stairway to Clear Thinking: Select and Evaluate Solution.

(11) Was our research accurate--did the number of products sold equal the number estimated?

(12) Why? (Discuss things that may have influenced sales--reduced need, more competition, poor quality work, lack of materials, lack of time to produce, and poor research. Note the fact that the research could have been faulty because the samples were biased--contacted only their friends or because it was poorly planned. In addition, results may have been affected because of production problems.)

(13) (If the unbiased factor was not brought out in Step 12, ask the following question:)

(a) What would have happened to our survey in Unit I if we had asked only our friends?

Answer: Probably would have been inaccurate, since they would not represent all the potential customers.

(b) This would have made our research biased. It would have favored a specific group or solution. It is important that research problems, hypotheses, and tests be fair to all possible solutions

(c) In what other ways might our research in Unit I been biased?

Answer: If we were surveying to compare the preference for one of a set of products, the student might not have presented all the products with equal vigor. If just one product was used, he might not have made a clear or enthusiastic presentation.

(14) Now as you think back and look at this OT: Stairway to Clear Thinking, you can see that there is an order to carrying on research; or to put it another way, research involves a systematic and unbiased investigation. This form of investigation is referred to as the scientific method of research.

OT: Stairway to Clear Thinking.

(15) (Ask your students for examples of research being done by local firms or research that could be done.)

OT: Stairway to Clear Thinking.

C. Conclusion

1. (Review the attributes of research with your class. Refer to OT: Attributes of Research.)

2. (Give your students the following problems and ask them to identify which ones are examples of research.)

   a. A farmer divides his beef herd in half and feeds each group a separate feed ration. At the end of 90 days he compares the gains produced by each ration.

   b. Joe buys a used truck for his business because it has a sign which reads "Reduced to $395" on it.

   c. The Ajax Company buys Klean-O soap for its laundry because the purchasing agent is a friend of the Klean-O salesman.

   d. Several beam designs for a new building are tested for strength. The one which meets the specifications and is least expensive is selected.

V. Evaluation

(Evaluation items for this lesson are given at the end of the next lesson.)

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor____________________ Date________________

Unit Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________

6. Which activity did you use?____________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items____

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain____________
____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain____________________
____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references____________________
____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor______________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made______________________________
____

LEVEL I - American Industry
UNIT III - Organizing an Enterprise
Lesson 7 - Research Must Give Appropriate Attention to All of the Factors That Might Influence a Solution (3 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Select properly defined problems, define a variable, identify the variables in a set of objects common to the American Industry laboratory, and make some simple judgements on the relationship between the variable and a given problem.

II. Scope

This lesson begins with the study of problem definition in research. Then the student will gain experience in identifying the characteristics (variables) related to objects and events found in the American Industry lab. Cause and effect relationships will also be discussed.

III. Resources

A. Instructional media

1. Wrenches: socket, open-end, box-end, and adjustable with varied handle lengths.

2. Cups: metal cup, plastic cup, paper cup, etc. Various sizes and colors should be represented. Volume is the critical attribute.

3. Screw drivers: assorted sizes, handle configurations, and handle colors.

4. Steel bolt and nut.

5. Wood screw partially driven in an oak board.

6. Two of the simple blocks from your communication unit.

7. Water and a container to measure water.

(NOTE: You will have to assemble enough sets of these materials to permit small groups of your students to work with them.)

B. Literature

1. Student booklet, Organizing an Industry, pages 3-14.

2. Student booklet, Industry Today, pages 2-4 and 14-17.

3. Teacher resource material, Research, #6. Review for your own information. If there is a conflict between the content of this lesson and the resource materials, the lesson takes precedence.

4. When you are reading your newspaper, periodicals, or books look for examples of research problems solved by industry.

5. Business Week, section on research.

IV. Content Outline

A. Introduction

1. Review the attributes of research discussed in the previous lesson.

   a. Systematic.

   b. Unbiased.

   c. Investigation or search for knowledge.

   d. Problem to be solved.

   e. Objective is to discover facts and principles.

2. What is the starting point of research?

   Answer: A need which is defined as a specific problem for research.

3. Correct, the definition of the problem to be studied arises from a need. Also, the definition of your research problem is a very important part of obtaining a good solution or answer.

B. Activity and content

1. Defining research problems.

a. The characteristics of a well defined problem are (list on blackboard):

(1) Clearly stated.

(2) Stated in a simple and exact way.

(3) Important terms are defined if they have more than one meaning. Remember how we found in our communication lessons that some words have more than one meaning? For example, "large" can have many meanings depending on the comparisons being made.

(4) Necessary specifications are listed. For instance, if your problem is to design a shelf like device to hold objects, you will have to space the shelves far enough apart to permit the objects to be placed on them.

(5) Limit the problem to one you have the ability to solve.

(6) Stated in question form.

(7) Stated in a way that will encourage creative thinking.

(a) Have your students take a sheet of paper and on the first side have them sketch a solution to the following problem:

What can be used for seating guests in a home?

After they are done, have them turn their papers over and sketch a solution to the following problem:

What can I use for a table in a home?

(b) Review the sketches and point out that the first problem allowed them to think more creatively than the second. We all have conceptions of tables which structure our thinking.

(c) Thus, rather than list an object which will serve your need when you define your problem, state the general function or purpose the object is to serve.

b. Let us examine the following research problems to see which ones are stated the best. (You may want to place these on the blackboard. Discuss each to the point when your students grasp the idea.)

(1) Design a table to be used in an office.

(Better: What kind of a surface could drawings and written materials be laid out on for review in an office?)

(2) Design a table.

(Too general, not a question.)

(3) Design a round table which is dark brown.

(Too specific, not a question.)

(4) Design a table which would be used to hold either dry or wet articles in the instructor's office of a swimming pool.

(Instead of table, use a term like device or apparatus. This would allow the researcher to design a rack to hold these materials as well as a table. Also, change to a question.)

c. What research problems did we study in our Unit I student enterprise?

Answer: Market and materials research.

d. What other problems might we have investigated in Unit I?

Answer: Processes, production, effectiveness of various types of advertising, etc.

e. (Application to Pronto Pre-fabs and local enterprises.)

   (1) (Define Wes's problem (see pages 3-10 in student booklet, Organizing an Industry), "What type of a shelter can I design, produce, and market at a profit?")

   (2) (Define Dick and Dan's problem (see page 3 in student booklet, Industry Today), "How can we make money this summer?")

   (3) (Define problems for local enterprises; such as the super market, drug store, clothing store, and gas stations.)

2. Collecting information on a research problem.

   a. We have just seen that a properly stated problem is an important starting point in research. However, we cannot stop at this point. More information must be obtained on the problem so a solution can be found. Remember the research problems we discussed earlier in this lesson? The first one we discussed was changed to "What kind of a surface could drawings and written materials be laid out on for review in an office?" What additional information will be needed to solve this problem?

   Answer: Number and sizes of drawings and materials, type of office it will be placed in, etc.

   b. Now, we will take a further look at how we can determine what information to look for when we attempt to solve a research problem.

      (1) All objects and events have certain characteristics (attributes) which can be identified.

         (a) (Using a simple block selected from your set for the communication area, bring out the following characteristics: color, material, weight, thickness, length, width, number of sides, and number of edges. Write these on the blackboard and save for Point (c) on the next page.)

(b) (Selecting an event in school such as a well known incident or a ball game, bring out the following characteristics: time, place, date, people involved, interaction between people, and results.)

(c) (Compare the two blocks you have on the characteristics you listed for block number one. There should be a change in dimension on one or more of the characteristics; such as size or the number of sides.) You see that each of these blocks has similar characteristics (attributes) however, the blocks are not the same. Why?

Answer: Values or dimensions of some of the characteristics are different.

The technical term for a characteristic (attribute) which has more than one value or size is variable. In other words, this characteristic may vary from object to object or event to event.

(d) (Using the set of cups you have, bring out the following dimensions. Use the discussion method. Variations in color, material, size, and shape.)

(e) What variables did Wes discover as he did his research for Pronto Pre-fabs? (See pages 7-12 in student booklet, Organizing an Industry.)

Answer: Cost, type of home, production techniques, and structural design.

(f) (Use one or two of the problems you defined for local enterprises in IV. B. 1. e. (3) and define some of the possible variables. For example, a gas station may have a problem of how to increase sales. Variables could be the price of gas, number of pumps, service, and location of the station.)

c. In the first part of this lesson, we have discussed how research requires a properly defined problem and consideration of the variables involved in the problem. As we have discussed various problems and possible variables there were times when we did not have enough information to state our problem or variables. How can we get information?

Answer: Review literature in the library, use our text books, ask our teacher, etc.

(1) How did we find out how many products to produce in our student enterprise?

Answer: Conducted a survey, market research.

(2) Correct, research can be used to supply the information we need.

(3) The typical procedure used in gathering information related to a problem is to first review the reports of what others have found out. These can be found in books, periodicals, and technical reports. If this source does not supply enough information, research is done to answer the remaining questions. (At this point you should be sure that your students are familiar with the sources of information in your school and community; such as libraries. Also, they should know how to obtain information from these sources.)

3. Developing hypotheses based on research problems. (Use your set of cups to present the ideas in this area.)

   a. In research as in many other activities, proper direction gives better results. Hypotheses give this direction to research.

      (1) An hypothesis is a possible or tentative solution to the problem.

      (2) An hypothesis states a relationship between two variables.

      (3) An hypothesis must be testable.

   b. Let us define a problem related to these cups, "What container will hold the most water?"

      (1) (Use the list of variables previously defined for these cups--size, materials, color, shape, etc. to develop several hypotheses. For example, green containers hold more than white containers.)

      (2) (Each hypothesis has to state a relationship between two variables.)

   c. How can we test these hypotheses?

      Answer: Any way which will compare the volume of each container and the water holding property of the materials and containers. Also logic or, more simply, common sense will tell you that color will have no affect on volume.

      (1) Note how the hypothesis specifies what characteristic or variable; such as color, to test.

      (2) Note that the test must be appropriate to the problem being considered.

   d. As we test hypotheses we will have to carefully record our results. (Have a record sheet or progress chart for recording your data.)

4. Testing hypotheses. (Complete the experiment with the cups.)

   a. Our hypotheses tell us what variable to test and how to test it. Let us see how this works in an actual situation.

   b. (Go through each hypothesis and determine what variables to check, then test with the water. Check for volume and water holding properties.)

   c. What hypotheses are correct?

      Answer: Volume affects capacity of container, water holding properties affect ability to retain water.

   d. Why did not color affect the volume of our containers?

      Answer: It had nothing to do with the volume of the container. (Point out the importance of identifying the cause and effect relationship between variables.)

   e. (Apply to the Dick and Dan story.)

      (1) What hypotheses did Dick and Dan test?

         Answer: Hiring out to cut lawns will produce a profit. Hiring out to trim hedges will produce a profit. Hiring out to do garden work will produce a profit. High quality work will produce a profit.

      (2) How did they test these hypotheses?

         Answer: (See student booklet, Industry Today, pages 14-17. Also, the profit at the end of the summer was absolute proof.)

   f. (Apply to Pronto Pre-fabs.)

      (1) What hypotheses did Wes have?

         Answer: (See student booklet, Organizing an Industry, pages 8-14.)

(2) How did he test them?

g. (Apply to a local or national enterprise. For example, what problems might arise with the design of new cars and how are these solved?)

5. Summary and activities to apply the knowledges presented in this lesson.

a. Activity #1.

Hand tool experiment.

Activity #1

(1) Apparatus (construct enough to have work for the small groups you establish for this activity).

(a) Using a steel bolt, tighten the nut so that it will be very difficult to loosen. If you want to, you can place a piece of stock between the head and the nut of the bolt.

(b) Start a wood screw in a piece of oak. Be sure the screw is very difficult to turn.

(2) Reproduce the activity sheets for your students.

(3) Place an assortment of wrenches and screw drivers at each work station. Be sure there are some attributes which are not related to performance. If necessary, place tape on a part of the tool where it will not affect performance.

(a) Have a large and small adjustable wrench, short and long socket wrench handle, and if possible long and short open-end and closed-end wrenches.

(b) Long and short screw drivers, large and small diameter handles, rough and smooth handles, light and dark colored handles.

(4) Structure your groups and assign them to their stations. Each group should try both problems unless you are short on time.

(5) Supervise your students activities.

(6) Discuss the results. Be sure they arrive at the correct conclusions. Send the completed activity sheets to Richard Gebhart.

b. Activity #2

Activity #2

Product design.

If you have sufficient time, have your students design a product which might be produced in class. If you are teaching an eighteen week course, start your product design for Unit VII here. The eighteen week people will probably have to present some additional work in sketching at this point. In the full year or semester course, part of this assignment can be homework.

Use the SAAS for this activity. When you are done with the activity sheets send them to Richard Gebhart.

LEVEL I - American Industry
UNIT III - Organizing an Industry
Lesson 7 - Research Must Give Appropriate Attention to All of the Factors That Might Influence a Solution
Student Activity Assignment Sheet #1-A

Name________________
School________________
Date________________

HAND TOOL EXPERIMENT: WRENCHES

1. Problem: What characteristic(s) of a wrench influence its ability to loosen a nut?

2. What are the characteristics (attributes) of these wrenches? List all the characteristics you can identify--even the manufacturer.

3. What are your hypotheses?

4. How are you going to test your hypotheses?

5. List the results of your tests below.

6. What are your conclusions?

LEVEL I - American Industry
UNIT III - Organizing an Industry
Lesson 7 - Research Must Give Appropriate Attention to All of the Factors That Might Influence a Solution
Student Activity Assignment Sheet #1-B

Name__________________
School__________________
Date__________________

HAND TOOL EXPERIMENT: SCREW DRIVERS

1. Problem: What characteristic(s) of a screw driver influence its ability to tighten a screw?

2. What are the characteristics (attributes) of these screw drivers? List all of the characteristics you can identify.

3. What are your hypotheses?

4. How are you going to test your hypotheses?

5. List the results of your tests below.

6. What are your conclusions?

LEVEL I - American Industry
UNIT III - Organizing an Industry
Lesson 7 - Research Must Give Appropriate Attention to All of the Factors That Might Influence a Solution
Student Activity Assignment Sheet #2

Name________________
School________________
Date________________

PRODUCT DESIGN

1. What is your problem? (State below.)

2. What variables are involved in this problem? (If you have trouble with this, list all of the characteristics of the object you want to design and then select the ones you want to vary.)

3. What are your hypotheses? (List below.)

4. How are you going to test your hypotheses? (If you use sketches, be sure to attach them to this sheet.)

5. What is your solution(s)? (Sketches will probably be necessary. Attach them to this sheet.)

6. What do you think of your final design?

   A. Strong points.

   B. Weak points.

V. Evaluation

True or False Questions:

_____ 1. Research is systematic.

_____ 2. Research is done to create problems.

_____ 3. Marketing research does not use the same research skills as materials research.

_____ 4. Industry uses research only to develop product ideas.

_____ 5. Hypotheses are stated in question form.

Essay Questions:

1. List the steps in research. Place them in correct order.

2. Define research problem which a local business might study.

Multiple Choice Questions:

1. Which of the following is the best statement of a research problem?

   A. What?
   B. Advertising sells products.
   C. How can I sell more pennants?
   D. Demand increases as prices go down.

2. What is the starting point of research?

   A. Problem.
   B. Test.
   C. Hypotheses.
   D. Profit.

3. Pa in the Beverly Hillbillies on television found oil by accidentally shooting into the ground. Was Pa doing research?

   A. No, he did not discover any facts.
   B. Yes, he had a need for money.
   C. No, he was not making a systematic study.
   D. Yes, he gave a fair test to all hypotheses.

4. You are trying to design a beam for a new building. This beam has to support a heavy load and span a long distance. What characteristic of possible beams would be of least interest to you?

   A. Material from which the beam was made.
   B. Shape of the beam.
   C. Cost of the beam.
   D. Color of the beam.

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor ______________________ Date ______________

Unit Number ________ Lesson Number ________ Date Lesson Started ________

1. Amount of time used to complete lesson (to nearest ½ class period) ________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain ______________
____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain ______________
____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain ______________
____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain ______________
____

6. Which activity did you use? ______________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

LEVEL I - American Industry
UNIT III - Organizing an Enterprise
Lesson 8 - Each Possible Solution to a Problem Has to be Given a Fair Evaluation (2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Identify examples of research which exhibit an unbiased evaluation of the hypotheses involved.

II. Scope

In this lesson the student encounters examples of biased experimental and survey research. From these examples he should be brought to comprehend that each hypothesis or solution must be given an equal chance to succeed within the limits imposed by the problem.

III. Resources

A. Instructional media

1. Ditto copies of the comprehension activity sheets.

2. Five gallon water-tight pail. (May need more depending on your lab facilities.)

3. Six pound test fish line cut into lengths suitable for the experiment listed in the latter part of this lesson.

4. Weights or scales for measuring the tensile strength of the line. If scales are used, they should have some provision for retaining the reading at the breaking point.

5. Simple devices to hold the line during testing.

6. OT: Stairway to Clear Thinking.

7. OT: There is a Lot of Reason in Research.

B. Literature

1. Student booklet, Organizing an Industry, pages 7-16.

2. Teacher resource material, Research, #6.

3. Science and You, syndicated column by World Book Encyclopedia Science Service, Inc. Appears in daily newspapers and frequently has material related to research problems and evaluation.

4. Consumer Reports often describes the tests used on the products it evaluates.

IV. Content Outline

A. Introduction

1. In the first lesson on research we learned a definition of research. What was that definition? (Place the definition on the board when it is given.)

2. In the last lesson, we discussed how to define a research problem and develop hypotheses.

   a. What is an hypothesis?

   b. What is the sequence of steps in research?

   OT: Stairway to Clear Thinking.

   c. We also found that our ability to reason is an important part of testing hypotheses. For instance, color has no influence on the amount of water a cup can hold. (At this point show the OT: There is a Lot of Reason in Research to your class and bring out how reasoning is important in solving a problem.)

   OT: There is a Lot of Reason in Research.

3. Today we are going to take a closer look at the unbiased nature of research. (Underline this word.) By unbiased, I mean that each possible solution or answer to a problem receives a fair evaluation. You also note that a problem is involved when we do research. (Underline problem.)

4. Activity #1

   Activity #1

   (You will have to reproduce the activity sheets before class. Divide your class in half on some variable such as height, use of glasses, or seating position in class. The written material was purposely made difficult to read.)

Unit III
Lesson 8
Activity #1

COMPREHENSION EXPERIMENT--FORM T

Wes did not come up with his excellent plans and enthusiasm overnight. Without even realizing it at first, Wes began the steps of organizing and developing a new business. He began his research of small prefabricated structures and worked the problem over in his mind. Daily all of us have ideas which we approach in different ways. By introducing "system" to our approach and investigating ideas from many angles, we can follow the steps similar to those Wes did in his business--as all men in research do. Research is an important part of industry. Some people work on new devices, materials, or processes. Others try to improve products or services that already exist. Daily life and industry can use research in similar ways. How do you make use of research? Isn't it a means of systematically thinking things through? Let's see how Wes developed his idea.

Unit III
Lesson 8
Activity #1

COMPREHENSION EXPERIMENT--FORM W

Wes did not come up with his excellent plans and enthusiasm overnight. Without even realizing it at first, Wes began the steps of organizing and developing a new business. He began his research of small prefabricated structures and worked the problem over in his mind. Daily all of us have ideas which we approach in different ways. By introducing "system" to our approach and investigating ideas from many angles, we can follow the steps similar to those Wes did in his business -- as all men in research do. Research is an important part of industry. Some people work on new devices, materials, or processes. Others try to improve products or services that already exist. Daily life and industry can use research in similar ways. How do you make use of research? Isn't it a means of systematically thinking things through? Let's see how Wes developed his idea.

Unit III
Lesson 8
Activity #1

COMPREHENSION TEST

Directions: Circle the correct response or write your answer.

1. How long did it take Wes to make his plans?
   - A. Overnight.
   - B. Very quickly.
   - C. Slowly.
   - D. In one day.

2. Where did Wes begin his research?
   - A. When he obtained information on pre-fabricated homes.
   - B. When he came to work in the morning.
   - C. When he went home at night.
   - D. When he started his first business.

3. What is the role of research in industry.
   - A. A small part of industry.
   - B. An important part of industry.
   - C. Not a part of industry.
   - D. Used only by large enterprises.

4. How can you make your thinking be like research?
   - A. Think about industrial problems.
   - B. Do more thinking about problems.
   - C. Do less thinking about problems.
   - D. Make your thinking systematic.

5. What is research?______________________________________

   ____.

6. What examples of research were given in this paragraph?__________

   ____

   ____.

7. What would you expect in the next paragraph?________________

   ____

   ____.

a. I am going to compare ______(Name)______ group with ______(Name)______ group on your understanding of a written paragraph. I want to find out if (Variable Groups Were Selected On) has any influence on comprehension.

First, you will be given a short period of time to read a paragraph. Then you will take a test on this material.

b. (Seat the students in the two groups. Have them start reading as soon as you hand out the paragraphs. Give all the typed paragraphs to Group 1 before handing out the written paragraph to Group 2.)

c. Start reading as soon as I give you the paragraph.

d. (Call time rather quickly--before everyone in Group 2 can finish.)

e. (Collect the written materials. Start with the written paragraphs. Give the test. Limit the time on this also. Correct the tests. Give one point for each correct answer.)

B. Activity and content

(Bring out the biased character of the experiment.)

1. Now, let us compare the performance of the two groups. (Add up the scores for each group. Point out that you are categorizing the data under "Group____" and "Group____.")

2. Can I say that Group____ comprehends faster than Group____?

(No, bring out the following biases in the experiment:
1. Difference in readability between the two sets of materials.
2. Difference in time given to the two groups because of the way the materials were handed out.
3. Lack of time to read all the material (if we were interested in comprehension in speed reading, this would not be a fault).
4. Poor test questions.
5. Material was read by some students during previous classes.
6. Others the students think of.)

3. What can I say about my results?

   (Not much. If both groups had had an equal amount of time you could compare the readability of the two sets of materials.)

4. Thus, we can see that each possible solution to a problem must be given an equal opportunity to be proven or disproven.

   a. What was our problem? What influence does (Variable Used to Select Groups) have on comprehension?

   b. What are our possible hypotheses or solutions?

      Answer: Group_____ understands more;
      Group_____ understands more.

   c How was my experiment unfair to Group_____?

      Answer: More difficult reading and less time to read it.

   d. Thus, we can see that research must give each possible solution or answer an equal chance to succeed.

C. Application

(Test student's comprehension of the unbiased attribute of research.)

1. How did Wes plan his research to make it fair (unbiased)?

   Answer: (See pages 8-14. Especially note production research on page 12, the try-out of the model home on page 13, the wind storm on page 13, and market research on pages 13 and 14.)

2. What biases might have come into Wes's research?

   Answer: Unless he used the same workers, his experiments with construction techniques could be biased and he would have to be careful in surveying prospective customers to be sure they were typical citizens in his community.

3. What biases might we have included in our research in our student enterprise in Unit I?

   Answer:
   a. May have surveyed only your friends.
   b. Might have used a poor sample of the product.
   c. Could have forgotten to survey all grades and both boys and girls.
   d. (Also, list examples from other research done on production, processes, materials, etc.)

4. Your neighbor says that his make of car gives better gas mileage than your parents' since he gets more gas mileage than your parents do. What biases might be involved here?

   Answer: Different driving habits, different type of driving, different methods of calculating gas mileage.

5. Activity #2

   Test tensile strength of fish line.

   Activity #2

   a. (Divide your class into groups of three or four. Appoint a leader of each group.)
   b. (Assign them the problem: Are the pound ratings listed for fishing line correct? Give them a sample of the line. Give the same pound rating to each group. Tell them that their line is rated somewhere between wt. -5 pounds and wt. +5 pounds. Do not give the exact pound rating.)
   c. (Have the groups meet to decide on their research procedure. Observe what each group is doing and consult with them as necessary. After the plans are formulated or an impass has been reached, call your students back together.)

d. For the next few minutes we will review the plans each of your groups has made for testing this fish line. (Have the leader of each group report. Discuss each report. Bring out the biased or unbiased nature of each, e.g. is it a fair testing situation, and emphasize the fact that their experiment must pertain to the problem given to them. Note the importance of having the correct definition of tensile strength. Look for these characteristics in their plans:
1. Test wet line.
2. Reliable way to measure weight.
3. Constant application of weight.
4. Systematic way to record tests.
5. Attachments at the ends of the line which allow force to be applied without cutting the line.)

e. (Revise their plans as needed and then let them do their experiment. Give each group six pieces of line.)

f. (Have each group briefly discuss and summarize their data. Suggest that they try to find a good way to communicate their results to their classmates. For example, a graph might be appropriate.)

g. (Discuss the group results with the entire class. Have the leader of each group present the results of his group. Note how they communicate this to your class. Bring out that the average breaking weight would be the best indicator. Calculate this if it has not been done. Also, discuss any problems encountered by your students. For example, what should be done with the results of a trial that is done wrong? Also, how did the measuring devices affect the results?)

h. Was our experimental evaluation of the fish line unbiased (fair)? (Discuss this. Note that all samples were wet since fish line is used in water, etc.)

6. Now let us turn our attention to a problem a local enterprise might face. How can a super market determine if Brand X cornflakes sell better than Brand Y? (Discuss this until you arrive at an unbiased answer. In general, both brands should be placed so that they have an equal chance of attracting the customers' attention.)

7. How could we determine the nail holding ability of pine, oak, and maple? (You may want to make this a homework assignment.)

D. Summary

1. What do we mean by research being unbiased? (Discuss.)

V. Evaluation

Multiple Choice Questions:

1. A service station owner wants to test the hypothesis that "Reducing gas prices by two cents per gallon will increase his sales of gasoline." What would be the best way to test this hypothesis?

   A. Reduce the price on each Wednesday during a specific month.
   B. Reduce the price on weekends.
   C. Reduce the price for a week.
   D. Reduce the price for a month.

2. Joe decided that there was need for a clothing store in town. In order to determine what clothes to stock, he asked his friends what they would buy. What do you think about his research?

   A. Joe made a fair evaluation of his hypotheses.
   B. Joe made an unfair evaluation of his hypotheses.
   C. Joe had no need to do research.
   D. Joe made an unfair evaluation if his friends are not typical people from the town.

Essay:

1. How could you test the breaking point of a concrete beam. You are interested only in finding out if it will hold a load of one ton or less. Use sketches to communicate your solution.

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor ______________________________ Date ________________

Unit Number __________ Lesson Number __________ Date Lesson Started __________

1. Amount of time used to complete lesson (to nearest ½ class period) ________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain ______________________

____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain ______________________

____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain ______________________

____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain ______________________

____

6. Which activity did you use? ______________________

The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items____

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain__________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain_________________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references_________________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor______________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made____________________________

____

LEVEL I - American Industry
UNIT III - Organizing an Enterprise
Lesson 9 - Planning Research (2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Plan the research required to solve a simple problem, establish procedures for recording the data to be gathered, and be able to select criteria against which to evaluate hypotheses.

II. Scope

In this lesson, the student encounters research planning and data handling techniques. He will learn the steps in the scientific method, factors to consider in defining the criteria for a solution, and some simple ways to handle information.

III. Resources

A. Instructional media

1. OT: Stairway to Clear Thinking.

2. Ditto copies of Activity #1 and Activity #2.

B. Literature

1. Student booklet, Organizing an Industry, pages 8-11.

2. Student booklet, Operating an Industry, pages 35-42.

3. Student booklet, Industry Today, pages 25-26.

4. You and the Computer, 1965, General Electric.

IV. Content Outline

A. Introduction

(Relate the need to plan research to the activities and assignment sheets used in previous research lessons.)

1. How did you know what to do in the research activities you did in the last two lessons?

   Answer: We were told and we followed plans.

2. What caused the problems you had?

   Answer: Couldn't or didn't follow the research plans.

B. Planning the steps in research

1. Past lessons have shown us that there is a series of steps to follow in research. What are these steps? (Discuss this with your students. Use the OT: Stairway to Clear Thinking to summarize their answers.)

OT: Stairway to Clear Thinking.

2. (Bring out how Wes used these steps in doing the research which provided the basis for Pronto Pre-fabs. See student booklet, Organizing an Industry, pages 3-14.)

3. (Give your students a problem related to a local enterprise, and ask them to plan the research. Small groups should work effectively here. Have them use the steps outlined in Point 1 above. When they have had time to formulate their answers, call them back together and compare the solutions of the various groups. Give the "Researcher-of-the-Day" awards to the group with the best solution.

   A sample problem would be "How can the shingles on the homes in town be kept from blowing off in wind storms? Gathering information on such things as the velocity of winds in the area, direction of wind, temperatures during the windy season, and the types of shingles used would be planned for. These are possible variables. Example hypotheses are _____ inch thick shingles will not blow off in the highest wind experienced in this area, and gluing the shingles down will prevent them from blowing off. Use the hair oil commercials to suggest a wind tunnel test.)

C. Planning the gathering and storage of information

1. In our communication lessons, we discussed how various symbols are used to communicate. Why do we use a red light at an intersection to tell us to stop?

   Answer: It quickly tells us to stop.

2. Why does the football team wear numbers on their jerseys instead of the name of the player?

   Answer: It is easier to identify the player by number.

   a. How do we know who number 70 is?

      Answer: By experience or looking at the program.

   b. What happens when the person who wears number 70 this year graduates?

      Answer: This number is given to a new person and he is identified by it as he plays. Bring out the fact that the number is used only to distinguish number 70 from the other players on the field.

3. How are the names in the phone book arranged? Why?

4. Can you think of any other ways information is organized so that it can be easily stored, rapidly identified, and quickly located?

   Answer: a. Table of contents and the index in books. (Ask which is included in these--the most important information.)

   b. Card catalog. (Ask why books are numbered.)

   c. Television schedule. (Ask why the information is given by the time of day.)

5. How did we organize our information in our student enterprise in Unit I?

   Answer: Expenses--income, buy--will not buy in the market survey, materials--supplies--equipment, supervisors--workers, and the average price per unit in which all expenses were totalled and divided by the number of units of the product made. (Take the buy--not buy example and show how this saved time in calculating the potential sales over recording the name of each individual interviewed and whether that person would buy the product.)

6. How did Wes organize his information?

   Answer: (Page 8, student booklet, Organizing an Industry, Wes organized his research in the "vacation homes" category. Page 10, he concentrated his research on A-frame structures and limited its cost to less than $3,000. Page 11, Wes investigated pre-fabricated homes. Also, see pages 35-42 in student booklet, Operating an Industry.)

7. (If your students have answered 6 and 7 without any trouble, you can omit this question.)

   How did Dick and Dan organize their information?

   Answer: (See pages 25-26 in student booklet, Industry Today.)

8. We have just seen how information can be organized and processed to reduce the number of facts we have to use in our thinking, provide means to easily identify objects and events, and make it possible to quickly find information.

   a. Like objects and events are grouped together.

   b. Groups are unique. In other words, an object or an event cannot be placed in more than one group.

   c. Groups are given labels which identify the group and communicate.

d. Groups are placed in a meaningful sequence.

e. When possible, facts are summarized.

9. Activity #1 (Assign one or both.)

a. Mix a variety of supplies and tools in a box. For example, have screws of two or more lengths, bolts of two or more sizes, nails of two or more sizes and types, screw drivers, hammers, and cotter keys.

Make resource material, such as a supplier's catalog, available to your students so they can determine the names of the tools and equipment. Ask your students to sort the items in the box into separate groups and label these groups. Evaluate and discuss their results in terms of the ease of retrieval of the item and the logical relationship of the items they have grouped together. For example, placing wood screws 1 1/2" and 1 3/4" long in the same groups would not be very practical in terms of easy retrieval. You will want to have several boxes so you can split your class into small groups.

b. Ditto the material on the following pages and ask your students to develop a filing system for it. Mix the slips before you hand them out. Check their results for the logical nature of the filing system and the ease of retrieval and storage. The most obvious categories are income and expenses. Less obvious are male/female, type of product purchased or sold, and size of the purchase or sale.

10. Summarize the information gathering and storing principles.

a. (The groups, classifications, or categories must be meaningful. Income and expenses are meaningful in the finance area. However, specific item names and sizes are more appropriate for the production area. The use to which the information is to be put determines the classification system. Note the difference between the yellow pages and the remainder of the phone book.)

Unit III
Lesson 9
Activity #1

Sold to: Mr. J. Adelman

1 hammer	$2.95

Sold to: Mr. H. Cassidy

1 horse	$4,000

Sold to: Mr. O. DeFlorin

1 hammer	$4.95

Unit III
Lesson 9
Activity #1

Purchased from: Mr. A. Flynn

1 gross of hammers	$300

Purchased from: Mr. I. Gerber

1 dozen saws	$100

Sold to: Mrs. Z. Griggs

1 dress	$15.95

Unit III
Lesson 9
Activity #1

Sold to: Mrs. K. Haun

1 skirt	$9.95

Purchased from: Ajax Suppliers

12 dresses	$145

Purchased from: Zero Company

5 refrigerators	$1,000

Unit III
Lesson 9
Activity #1

Sold to: Mrs. H. Hebson

1 refrigerator	$239.95

Sold to: Mr. G. Lund

1 pound of nails	$.69

Sold to: Mr. R. Samer

1 saw	$11.95

b. (The labels placed on each group must communicate. Screws is not sufficient if you have several sizes and types.)

c. (The groups have to separate. Nails and screws in the same category would not be efficient.)

d. (Information has to be stored in a sequence or pattern which allows easy retrieval. An example is the phone book.)

11. Activity #2

Review the principles taught in the research lessons.

a. (Duplicate the activity sheet on the following page. Distribute it to your students and ask them to identify how the research described in the article conformed to what they learned in class. Give your students enough time to consider the problem and respond to it.)

b. (Discuss the problem with your students. Develop the following points.)

(1) (Problem: How effective is outdoor advertising?)

(2) (Hypothesis: People will read and remember the contents of an outdoor advertisement.)

(3) (Test: First, found out how many knew a given fact before the ad was put up. Second, put up the ad. Third, found out how many knew the fact after 30 days.)

(4) (Evaluation: Compared the per cent who knew the fact before the ad was placed with the per cent who knew it after the ad had been up for 30 days.)

(5) (Unbiased: Used adults who would be unlikely to get this information in any other way. School age people might get this in a history or government course.)

(6) (Systematic: Note the sequence of events in the test phase above.)

(7) (Find facts or principles: Note what they found in the research.)

c. (Send the completed activity sheets to Richard Gebhart when you have finished discussing them.)

Unit III
Lesson 9
Activity #2

Name____________________
School__________________
Date____________________

Directions: Read the article reproduced below. Using the ideas you have learned in research, discuss how these ideas were used by United Advertising. You can circle sentences and write in the margins if you want to.

Coolidge Was Which President?

Anyone in or around Newark, New Jersey, should be able to give the answer quicker than most people. A billboard company, United Advertising, drenched the area with signs (170 of them) blaring in big orange letters on a blue background: "Calvin Coolidge Was Our 30th President." A survey firm, C. E. Hooper, conducted a before-and-after check. Before the signs, only about four out of 100 adults knew which President Cooledge was. After the signs? Within 30 days, 40 out of 100 knew the right answer.[1]

---

[1] Changing Times: The Kiplinger Magazine, XXI, September, 1967, page 32.

V. Evaluation

1-16. Below are a group of materials and a group of drawers or bins. Arrange the materials in the bins so that a man having to learn the material locations would have the least difficulty. Place the letter of the material you wish to place in a bin next to the corresponding number on the answer sheet.

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

A. ½" nails
B. Nail sets
C. Fuses
D. 1½" nails
E. Switches
F. 2" nails
G. Bulbs
H. Plugs
I. File handles
J. Plane irons
K. Pencils
L. Pens
M. 1" nails
N. Magic markers
O. Drills
P. Paint brushes

17. You are trying to select a paint for the front steps of your house. How would you do the research to find out which is the best paint? Describe your research below.

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor____________________________ Date____________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________________________

____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________________

____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________________________

____

6. Which activity did you use?____________________________________

The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

LEVEL I - American Industry
UNIT III - Organizing an Enterprise
Lesson 10 - Introduction to Management (3 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

   A. Define management and apply the concept to the various phases involved in industrial production of goods or services.

   B. Define the basic types of ownership and identify the purpose of each.

II. Scope

This lesson serves as an introduction to the area of management. It contains references to those concept areas previously studied and provides the base for future references in this unit and Units IV, V, and VII.

III. Resources

   A. Instructional media

      1. OT: Management.

      2. OT: Management: The Attributes Of.

      3. OT: Corporation.

      4. OT: Partnership.

      5. OT: Individual Proprietorship.

   B. Literature

      1. Student booklet, Organizing an Industry, pages 1-21.

      2. Industrial Organization and Management by Bethel and others, 1962, McGraw-Hill, New York.

      3. The Practice of Management by Drucker, 1954, Harper and Row, New York.

IV. Content Outline

A. Introduction

This lesson will provide an insight into the concept of management. We will start by finding what you know about it.

1. How many of you know what management is? What does it mean to you?

2. Ask the students to give definitions or examples of what management is. (Project OT: Management without overlay.)

   OT: Management.

   Using the answers of your students, attempt to bring out the attributes in the definition: The guiding and directing of industrial activities in the most efficient manner. (Project OT: Management with overlay.)

   Give some examples of management using a familiar local enterprise.

3. What do the following have in common?

   (Establish the concept of management using these--all are concerned with guiding and directing in an efficient manner. Some may not be industrial though.)

   a. The principal.

   b. The owner of a local grocery.

   c. A corporation president.

   d. Our football coach.

   e. The supervisor of production.

   f. The president of a local bank.

   g. Class president or student body president.

4. What do the above have in common? Are they all involved in managing?

5. Have any of you done managing of any kind? Did you manage a party, a junior baseball team, or work as an equipment manager for one of our coaches?

6. Would managing a party or a junior baseball team require some of the same knowledges as managing a super market?

7. (Attempt to bring out the major sub-concepts of management: organize, plan, implement, operate, control, and improve. (Project OT: Management: The Attributes Of without overlay.) The illustrations should help bring out the sub-concepts.)

OT: Management: The Attributes Of.

8. Would managing a corporation be the same as managing a production line? (Identify the similarities and write them on the blackboard.)

B. Activity and content

1. Based upon our student enterprise activity in Units I, II, and thus far in Unit III what did we find necessary for efficient management? Take five minutes to write those necessities we found for efficient production.

2. Using the sub-concepts listed below as a guide, identify the necessary ingredients of management. (Project OT: Management: The Attributes Of with overlay.)

OT: Management: The Attributes Of.

a. Organize--select ownership and structure.

b. Plan--decide what your future plans are.

c. Implement--put the plans into action by hiring, training, and starting production.

d. Operate--keep production moving smoothly. Know how to solve most problems before they arise.

e. Control--based upon the plans, know the amount of production to expect, supervise your personnel, and evaluate both.

f. Improve--efficient management also calls for improvement. We are improving ourselves today through education. Industry improves in the same way, but they also improve by finding the problems in producing and correcting them.

3. (This should allow the teacher to summarize what has been studied to this time--the definition and sub-concepts of management.)

4. (This should complete the first day of this three day lesson.)

End of first day.

5. Let's assume that we know what management is. We know that it involves the guiding and directing of industrial activities in an efficient manner.

Second day of management--remind the students of their reading assignment.

6. Soon we will want to set up our own American industry enterprise, so let's find out how to manage and what we must know.

7. We will start with organizing. First of all what is organizing? Part of organizing is establishing an organization structure.

8. Our school organizational structure looks like this. (Show the structure using the overhead projector or the blackboard.)

OT: School Organizational Structure. (Made by teacher.)

9. Our local (select a business) might look like this. Whether or not these structures of an organization are drawn in a chart form does not always mean none exists. In fact, most small businesses have an understood structure. (Teacher: Explain in detail if necessary.)

OT: Local Business Organizational Structure. (Made by teacher.)

10. Are all organizations structured the same? Let's examine one organization that each of us is familiar with, our family. Is Dad the president? Is Mom? Is it a board of directors?

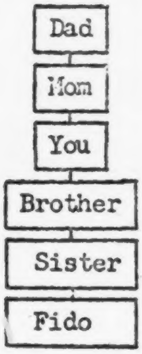
11. I will distribute an assignment sheet which is to be completed by each of you. (Allow the students to work all except ten minutes of the remaining period.)

LEVEL I - American Industry
UNIT III - Organizing an Industry
Lesson 10 - Introduction to Management
Student Activity Assignment Sheet #1

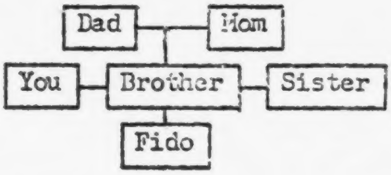
WHO'S BOSS!

Who has the "final say" in your home? Dad or Mom? Usually it's Dad, isn't it? Let's start at the other end. Suppose you lived in a home that had a family of five, plus a dog, and that you were the oldest child and had a younger brother and a still younger sister. If you had five chairs in a room and were all asked to sit down, which one in your home would not get a seat? Your dog would have to remain on the floor, wouldn't he? Why? Isn't he the one who has least amount of authority? If you had only four chairs, who would be the next in line to be "left out?" Probably your younger sister! We could follow this all the way up through your younger brother, you, your mother, and finally your dad. (If he wasn't polite and let your mother have a chair.)

You could, if you wanted to, draw up a chart to show you the line of authority. Here is how it would look.



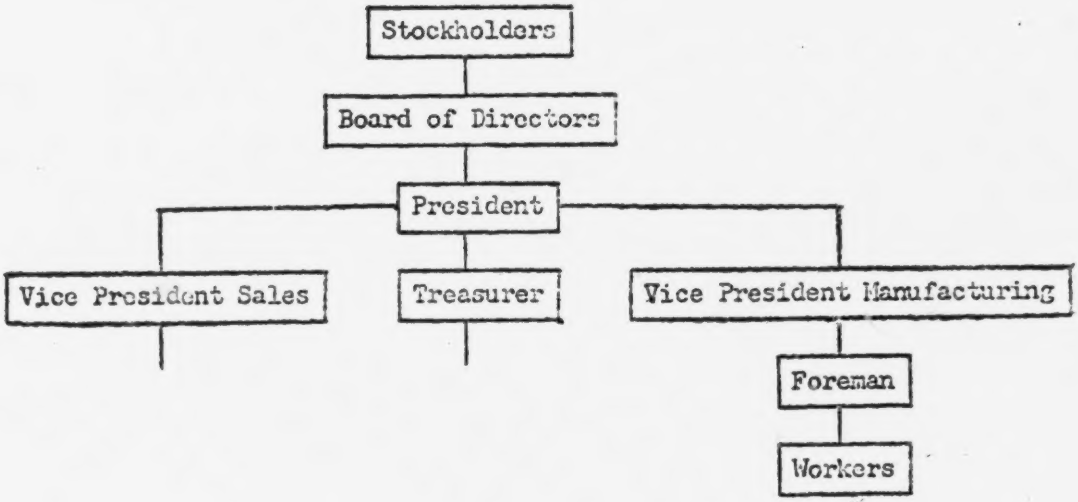
Some families could set up theirs to look like this.



When Wes was setting up his company, he also wanted to organize the men and authority. To do this, he could arrange them the way he wanted, then draw up a line chart to help show the lines of authority, to keep the men organized, and to help them get along with each other.

He might have drawn up his chart like this.

WES'S PRONTO PRE-FABS, INC.



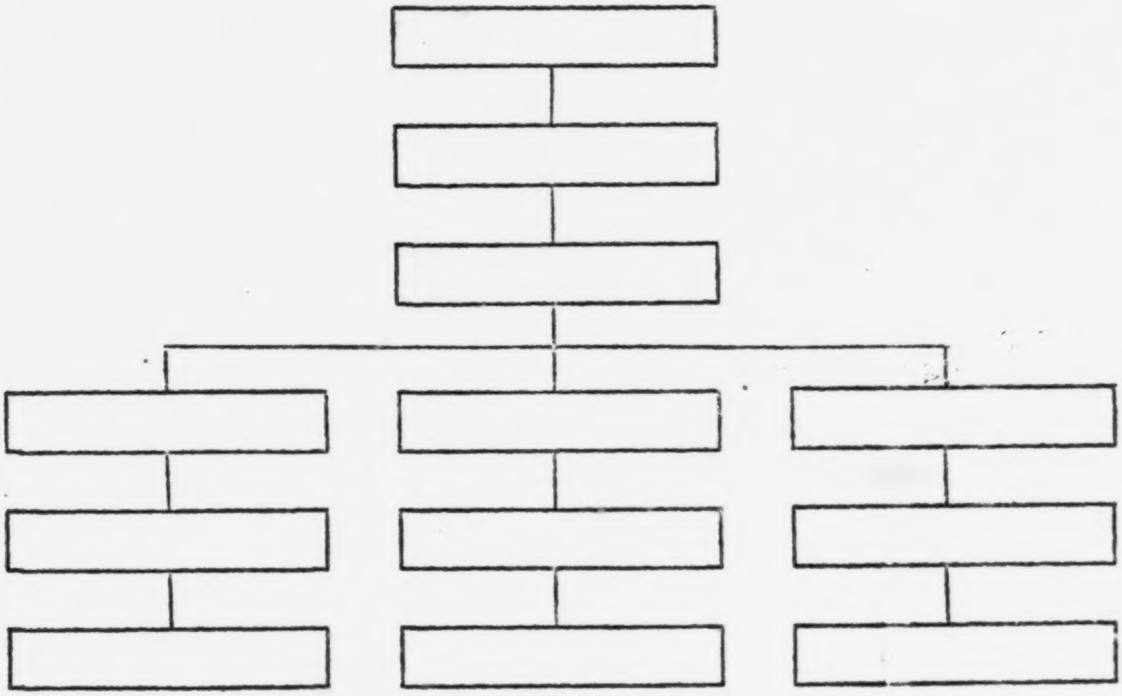
In this structure, the chart shows that the stockholders control the corporation. When charts are drawn up to show the structure of the company, the person or group that is located at the top has the most authority. The group directly below this, on the chart, is responsible to the group directly above them. This procedure follows throughout the entire chart.

If the board of directors is responsible to the stockholders, who is directly responsible to the board of directors?________________________________

Who is directly responsible to the vice president of manufacturing?

Take the public school positions listed below and place them into the proper position on the chart.

1. Elementary student
2. Junior High student
3. Senior High student
4. Elementary teacher
5. Junior High teacher
6. Senior High teacher
7. Superintendent
8. Adult in school district
9. Junior High principal
10. Board of education
11. Senior High principal
12. Elementary principal



NOTE: Would all schools be structured this way? Why not?

12. Now that all have completed the SAAS, we will review them. (Discuss the answers given on pages 2 and 3. Take time to discuss why two organizations producing similar products might not be structured the same.)

Note the means of communicating through charts as used in industry. Are there others?

13. (This should complete the second day of this three day lesson.)

End second day.

14. If we plan to establish our own American industry enterprise, we should understand the types of ownership involved in any business.

Start third day of introduction to management.

15. What types of ownership have you read about in the student booklets? (They should answer: proprietorship, partnership, and corporation. If they do not, the teacher should identify some local businesses and the type of ownership of each.)

Refer to booklet assignment (ownership).

16. (Next, the teacher should identify the attributes of each type of ownership. However, he should also discuss the limitations of each.)

On the day prior, student could be assigned small written reports on one of the types of ownership.

Types of Ownership

a. Individual proprietorship is the owning, organizing, and operating a business by an individual under his own name. (Project OT: Individual Proprietorship.)

OT: Individual Proprietorship.

(1) Assumes all risks.

(2) Limits capital available and human abilities.

(3) Receives all profits.

(4) Responsible for making all decisions and evaluating results.

b. Partnership: Two or more individuals jointly assuming full responsibility in the owning, organizing, and operating of a business. (Project OT: Partnership.)

OT: Partnership.

(1) Share risks and profits.

(2) Provide additional capital and human abilities.

(3) Provides for division of responsibilities.

c. Corporation: Form of organization authorized by federal or state governments under which business assumes a separate identity and responsibility is limited to the organization. (Project OT: Corporation.)

OT: Corporation.

(1) Personal risk is limited to investment.

(2) Provides for possibility of large pool of capital and human abilities (more opportunities for specialization).

d. Compare the three types of ownership and determine their differences on the basis of:

(1) Liability.

(2) Sharing profits.

(3) Amount of capital available.

e. Explain the characteristics of one type of ownership and see if the students can tell - if it is individual, partnership, or corporation.

17. Now we are ready to select the appropriate type of ownership for our student enterprise. (For this lesson the corporate form of ownership will work best.) We will structure our organization and define the goals of our organization.

18. Once we have established definite goals, we have a starting point for planning. Our next step includes learning how to prepare plans. Nearly anything, from the sequence of production to administrative procedures requires planning.

19. Industry uses various systems in planning, however, one common system is the network system or often referred to as network analysis. This type of planning identifies the events necessary to complete a job. It does so in a way which shows the flow and sequence, but also those events taking place simultaneously. Let's look at one.

20. (Distribute copies of the sample network analysis to each student. If you wish to use a different network, feel free to do so.)

Give each student a copy of the sample network analysis.

21. (Read through the notes at the bottom of the page. Ask the following questions.)
    - a. What has been planned?
    - b. How many events are involved?
    - c. Identify some events that are happening at the same time.
    - d. Could you set up a silk screen production line using this network?
    - e. What are the advantages of using this?
    - f. Could you make one showing the plans for producing tent stakes, salt and pepper shakers, or coasters?
    - g. Could you make one that would show an assembly process or the steps in making a cake?
    - h. Could we add times to these events? Why?

22. Discuss with the students the way in which they will be making a similar network in Unit VII.

23. This should complete the first lesson of the concept area of management.

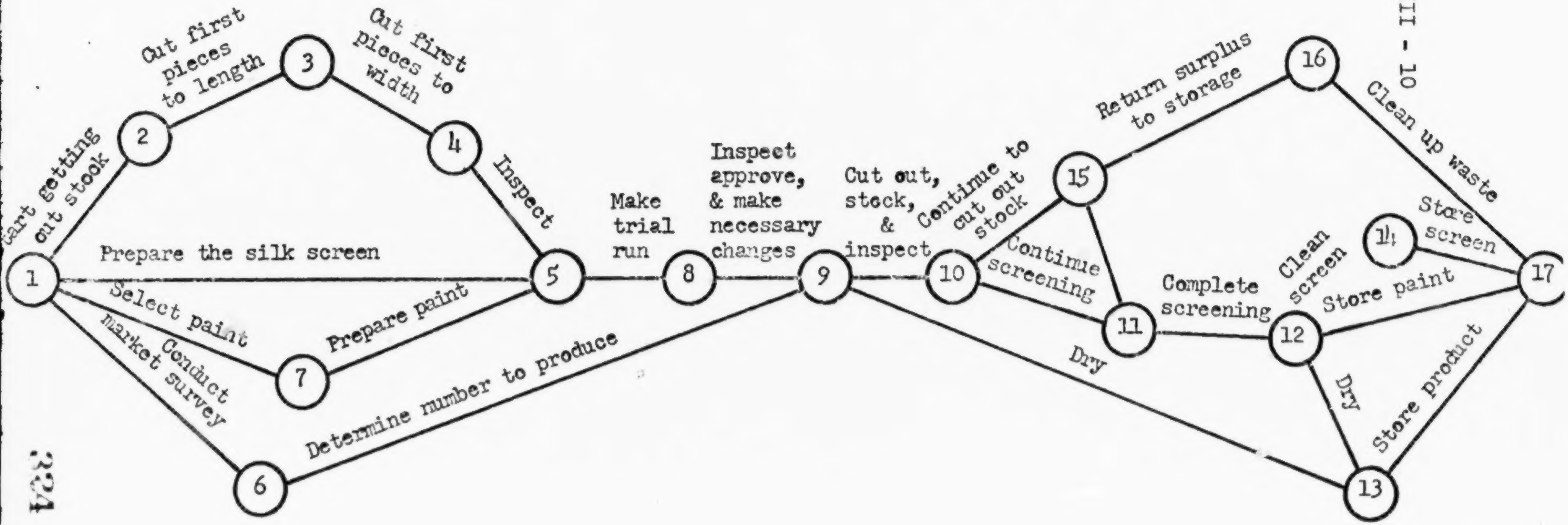
C. Conclusion

1. (In concluding the introduction to management bring out the following points.)
    - a. Management involves the guiding and directing of all industrial activities in the most effective manner. (Project OT: Management with overlay.)

OT: Management.

    - b. It requires organization, plans, and the implementation of these plans in order to operate a business and control through supervision and other evaluations. Last, it plans in order to make improvements. (Project OT: Management: The Attributes Of with overlay.)

OT: Management: The Attributes Of.



——— : Represents activities or operations.

③ : The circle represents the beginning or ending of an activity and is called an event. The number within the circle is used to identify a specific event.

① — ② : Two numbers can be used to identify a specific activity, for example, 1-2 can be employed to identify the activity of getting cut stock.

NOTE: The time required to complete each activity may be given under the arrow that represents the activity in the network. If the job has been done before, records can be used to determine the time. For new jobs, an estimate will have to be made.

c. In order to organize we must determine who will be "boss" etc.

d. The type of ownership which we have studied affects all of the above. In some cases we have a board of directors, in others one boss who is the owner.

e. All are concerned with one basic objective "to produce goods or services which meet the needs of man for a profit."

V. Evaluation

1. In your own words, define management.

Select the most correct answer:

2. Which of the following generally is not involved in managing?

   A. Bank president
   B. The owner of a local grocery store
   C. A machinist
   D. The school principal

3. Which of the following is not a part of managing?

   A. Planning
   B. Combining
   C. Implement
   D. Control

4. In developing organizations for five different companies we should find:

   A. Money is not essential
   B. Most organizations have some very basic parts
   C. Most companies are not organized
   D. The president is the owner and operator

5. A business which is owned and often operated by an individual is called a:

   A. Partnership
   B. Proprietorship
   C. Corporation
   D. Evaluative

6. An enterprise which is owned by two or more individuals who jointly assume responsibility in ownership is referred to as a:

   A. Partnership
   B. Capitol business
   C. Corporation
   D. Proprietorship

7. A system used by industry which identifies a sequence and flow of events for completing a job is a:

   A. Corporate layout
   B. Network system
   C. Man plan
   D. Systems sequence

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor ____________________ Date ____________

Unit Number ________ Lesson Number ________ Date Lesson Started ________

1. Amount of time used to complete lesson (to nearest ½ class period) ________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain ____________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain ____________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain ____________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain ____________________

6. Which activity did you use? ____________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain ____________________

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________
____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________
____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________
____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________
____

LEVEL I - American Industry
UNIT III - Organizing an Enterprise
Lesson 11 - Applying the Concept of Management (2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

   A. Identify similarities in large and small enterprises and apply the concept of management to their various functional operations such as research, production, and marketing.

   B. Determine some basic methods of selecting and training personnel for meeting specified objectives in a student enterprise, then apply these to local enterprises.

II. Scope

Many techniques are used in guiding and directing the functional operations of an enterprise. Nearly all involve trained personnel and require a certain amount of guidance in order to accomplish their tasks.

III. Resources

   A. Instructional media

   B. Literature

      1. Student booklet, Organizing an Industry, pages 21-26.

      2. Industrial Organization and Management by Bethel and others, 1962, McGraw-Hill, New York.

      3. The Practice of Management by Drucker, 1954, Harper and Row, New York.

IV. Content Outline

   A. Introduction

      1. In Unit I we organized our class, prepared for production and produced ____________________________ (identify the product).

      2. In organizing, planning, producing, and selling, we were involved in "hiring" people, teaching them how to perform their duties, and making sure that each did his job. This, of course, involved management.

3. During this lesson, which will take about two class periods, we are going to discuss some of the similarities of managing our student enterprise as opposed to local firms. We will also complete a job application and find what interviews consist of. If time permits, some training will be done.

B. Activity and content

1. You will recall the ______________(product) we made in Unit I. I think this is not really different than making cars, toasters, or garden rakes.

2. How many of you feel the same about this? (Some will probably agree, others may not. Ask them why they agree or disagree.)

3. Did we organize, plan, implement our plans, produce a product, and control our efforts? How and what was involved in doing each? (Discuss each sub-concept above.)

4. Once the plans had been put into action, did we make any improvement? In what way?

5. How did our student enterprise differ from these local enterprises? (Identify some goods producing and some service producing.)

6. (Attempt to bring out that each must organize, plan, implement the plans, produce, control, and improve. All is to make a profit for the enterprise.)

7. In order that an enterprise might plan and implement their plans they must have employees. Some people are short, others tall, some healthy, some not, some trained, others require training, etc.. however, various jobs require various physical and mental qualifications.

8. Let's assume that a company is looking for someone to fill a position and has identified the capabilities the person applying must have. Your capabilities seem to meet the job requirements and you are interested in the position. How will you approach the firm? How will they know of your qualifications? (Bring out that applications are usually submitted and they are often followed by a personal interview.)

9. How many have completed or have seen an application blank? What would you expect to find on an application blank? Why?

One day prior, ask the students if they can bring copies of any application blanks.

10. The remainder of this class period will be spent preparing and discussing job applications. Provide the information requested, it will help you get a job in our student enterprise.

Distribute SAAS: Let's Apply for a Job.

11. Tomorrow we will do some role playing. Using teams consisting of an interviewer, interviewee, and three observers and discussants, we will conduct interviews for selected jobs. The persons interviewing will review the application for employment prior to holding the interview.

12. We will have examples of what to do in some interviews and what not to do in other interviews.

13. (Select the interview teams and observers. Give the interviewer the application for employment of the person to be interviewed. NOTE: The what not to do during an interview will require two people who can "ham it up." Have one with soiled unpressed clothes, uncombed hair, unpolished shoes, chewing gum, etc. The students should learn much from these interviews.)

14. Today we are going to observe two types of interviews. They are directed at what to do and what not to do in an interview. Note the desirable and undesireable appearance and conduct during the interviews. This can be recorded on the interview evaluation form which is being disseminated. (Hand out interview evaluation format.)

Second day lesson.
Tie in communication.

Distribute Interview Evaluation Format.

C. Conclusion

To conclude this lesson we should remember the following:

1. In order that an enterprise may produce, people are needed.

2. People don't just appear on the job and start work, they are selected for a job that fits them. This is one reason for completing an application form.

3. We have seen the way people attempt to get the jobs they want.

LEVEL I - American Industry
UNIT III - Organizing an Enterprise
Lesson 11 - Applying the Concept of Management
Student Activity Assignment Sheet #1

LET'S APPLY FOR A JOB

EMPLOYMENT APPLICATION BLANK

Name______________________________ Date______________

Address____
(street) (city) (state) (zip)

Telephone number______________

Date of birth________________ Birthplace__________________
(month) (day) (year)

Height ____ft. ____in. Weight ____

Married ____yes ____no Number of dependents ____

(If additional space is needed for the items below attach extra pages.)

Education

School Attended	City and State	Grades or Degrees Completed	Year of Completion

Other Special Schooling or Training

School Attended	City and State	Hours of Coursework	Completion

Previous Experience

List all previous jobs held and the average earnings per month.
(Use additional paper if needed.)

1.
2.
3.
4.
5.

Reasons for leaving last job.

____

____

____

____

References

Identify three adult references and give addresses of each.

1.____

2.____

3.____

General Information

1. Describe any physical disabilities.

____

____

____

2. Hobbies.

____

____

____

(All information on this form will be considered confidential.)

INTERVIEW EVALUATION FORM

1. Name of applicant ____________________

2. Name of interviewer ____________________

3. Position being applied for ____________________

4. Appearance (comment as to outward appearance and conduct).

5. Physically fit for job (comment).

6. Knowledge about job or position.

7. General comments.

4. Do you think there is skill involved in getting a job? In what way is skill involved?

5. Once a person has been hired, the enterprise may wish to extend his knowledges and skills by training him. We did some training during the first unit. Can you identify the training that took place?

6. In some of the following units we will again find the need for training.

7. We have discussed some of the basic questions asked by a prospective employer. Remember, the employer has plans and you may become a part of them, if you can meet his needs.

8. In the next lesson we will be concerned with the way an enterprise puts its plans into action.

V. Evaluation

1. Identify five ways in which managing a small business is like managing a large corporation.

   A.

   B.

   C.

   D.

   E.

2. Name six items or bits of information that might be asked for an application blank.

   A.
   B.
   C.
   D.
   E.
   F.

   Select the most correct answer.

3. In order to operate, a business needs materials, finances, and:

   A. Animals
   B. Wood
   C. People
   D. Paper

4. An efficient organization selects:

   A. Large numbers of employees
   B. The right person for a specified job
   C. All male employees
   D. All female employees

5. Showing someone how to operate a lathe is called:

   A. Directing
   B. Guiding
   C. Culminating
   D. Training

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

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Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor______________________________ Date____________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________
____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________
____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________
____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________
____

6. Which activity did you use?____________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

____

LEVEL I --American Industry
UNIT III - Organizing an Enterprise
Lesson 12 - Getting a Job (1 period)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

A. Prepare a simple organization which could be used in an American Industry classroom enterprise.

B. Select personnel, from the American Industry class, to fill the organization identified in I. A. above.

II. Scope

This lesson will allow each student to play the role of a person involved in operating a company.

III. Resources

A. Instructional media

Blank sheet of acetate and overhead projector. (Could use chalkboard.)

B. Literature

1. Student booklet, Organizing an Industry, pages 19-20.

2. Student booklet, The Student Industry, page 11.

IV. Content Outline

A. Introduction

1. (Each student should arrive in class with an organization chart that could be used for a student enterprise. The students should be referred to student booklet, Organizing an Industry, pages 19-20 and student booklet, The Student Industry, page 11. In making this assignment have the students leave ample room to add a name to each job title.)

Assign this one or two days prior to presenting this lesson.

2. Today I will examine the organization charts that each of you has made. While I am doing this you may complete a form which will briefly describe your work experience. It will also allow you to describe the type of work that would interest you in working with our student enterprise. (Teacher: copies of these should be sent to the American Industry Project.)

Have copies of the Work Experience/Work Desired form available for each student.

B. Activity and content

1. (Distribute the forms, Work Experience/Work Desired.)

Allow about 15 minutes to complete this form.

2. (While the students are completing these, the teacher should examine the organization charts and question each student about any obvious errors in his chart. They should have included a board of directors in this chart.)

3. (When the students have completed the forms attach all of them to the bulletin board. Then allow the students to examine the forms and jobs desired. Based upon this, each student should add names to each job title. Remind them that many workers are needed on the production line, also, that a president and other officers are essential to operating a company.)

4. (Organization charts for other student enterprises can be made from this information. This will allow most students a chance to perform in the jobs they have requested.)

Gather all charts and forms for future organization.

C. Conclusion

1. If time permits, prepare an organization chart for the next enterprise.

OT: Use a blank sheet of acetate or the chalkboard for this.

2. Training for these jobs will be more meaningful if done just prior to the work.

LEVEL I - American Industry
UNIT III - Organizing an Enterprise
Lesson 12 - Getting a Job

WORK EXPERIENCE/WORK DESIRED

Name_______________________ Date_______________

I. In not more than a sentence or two, describe the work experience you have to date.

A.______________________________

B.______________________________

C.______________________________

D.______________________________

E.______________________________

II. What type of work would you prefer in working with our student enterprise. (Give your first three choices.)

A.______________________________

B.______________________________

C.______________________________

V. Evaluation

1. Give two reasons for making an organization chart.

A.____________________

____

B.____________________

____

2. Why is experience important in doing most jobs?

____

____

____

____

3. What was your first job choice in the student enterprise? Why?

____

____

____

____

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor ______________________ Date ______________

Unit Number __________ Lesson Number __________ Date Lesson Started __________

1. Amount of time used to complete lesson (to nearest ½ class period) ________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain ______________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain ______________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain ______________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain ______________________

6. Which activity did you use? ______________________
   The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain ______________________

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ______________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______________________________

____

LEVEL I - American Industry
UNIT III - Organizing An Enterprise
Lesson 13 - Introduction to Finance (1 period)

Stout State University
Spring, 1968

I. Objectives: At the conclusion of this lesson the student should be able to:

Identify a representative sample of the financial activities engaged in by an enterprise.

Show how the financial needs of a company are met and ways in which these methods are employed by other companies.

II. Scope

As an introduction to finance this lesson is concerned with identifying the financial requirements of a business by answering the following questions: What property is needed? How many people? How much will it cost? How should the company record its financial history?

III. Resources

A. Instructional media

1. OT: Finance, The Attributes Of

B. Literature

Student booklet, Organizing An Industry, pages 27-41.

IV. Content Outline

A. Introduction

1. (This lesson is basically concerned with developing the concept of finance. However, the relationships between finance and the concept areas previously covered in this unit should be brought out. They are: communication, research, and management.)

2. (The financial needs of any enterprise are basically the same. In studying the concept of finance, as in studying any concept, the student must be able to apply his understanding of finance to various situations. The teacher should refer to the student enterprise of Unit I, and to a proposed student

enterprise, and to a local enterprise. By doing so, attempt to show the ways they determine needs for, get, and control money. Reference should be made to "Pronto Pre-fabs" in the student booklet.

B. Activity and content

1. The finance aspect of an enterprise. Each enterprise involves: getting money, determining efficient use, and control of money. However, the enterprise must also know how much money is needed and be able to locate sources of money. Basically, this is what finance is.

2. (The teacher should note the financial involvement of the students in the student production activity used in Unit I as it relates to the following discussion.)

3. Let's consider the activities this class was involved in during the production of (identify Unit I product) during our first unit. Let me ask some questions about it.

    a. In order to produce the product (identify it), what was needed? (A student may be writing the responses on the chalkboard.) (They should identify such items as product material, cash to operate with, tools, machines, labor costs, technical know-how, etc.)

    b. We needed and procured these items. Now, let's identify the cost of each. (In some cases you may have to estimate the costs.)

    c. (There should be a list of items on the chalkboard with the cost beside each.)

    d. Does this list represent the financial needs of our Unit I enterprise? (If not, make any other additions.) What is the total cost?

    e. Why have we represented our needs with a dollar figure? (Bring out the fact that money is our medium of exchange. You could briefly review the barter system and need for money that was discussed in Unit II.)

f. We have identified the financial needs of our Unit I production activity. Next, how did we get the money needed? What possible sources did we consider? (If the two questions above do not apply, merely change the questions to: What sources could have been used to get money?)

Sources should be identified. They could include going into debt by borrowing, selling bonds, or getting the machines, materials, etc. and paying later (called accounts payable). Another source could be through selling ownership in the company by selling stock. (Note that in some businesses, such as the proprietorship and partnership, the owners provide all funds needed.) (Spend some time exploring the reasons why borrowing in one case might not be good in other situations.)

g. Once we had the money needed for our activity, how did we control it? (Be sure that all students understand the method used to control their finances. If none was used, ask about ways in which it could have been handled.) (Note their control method. A budget should have been developed, regardless of its simplicity. Make the point that their budget should merely show the revenue expected and the anticipated expenditures.) (Also, note that something similar to a budget probably had been prepared even though it was not formally on paper.)

h. How did we record our expenditures? (This may have been a simple bookkeeping system, but should be identified as a necessary record, then ask the following:)

What was the purpose of recording our expenditures? Do your parents have similar records?

(How about the check book?) Would a local enterprise (identify one) use such a system? Would any enterprise use a similar system?

(Spend some time discussing the financial records of your student enterprise.)

OT: Finance: Attributes Of

4. Relating our activity to industry. We have noted that in order to procure and control the funds of an enterprise we must determine the following:

   a. Identify our needs, that is, what we need in property (land, buildings, equipment, etc.) and people (technical know-how) and working funds (the money needed to operate the enterprise).

      (Relate these considerations to Pronto Pre-fabs and to a local enterprise.*)

   b. Quantity--How much do we need? (Total the items mentioned above.)*

   c. Where will we get the money? (Source.) Will we go into debt or sell part of the enterprise? Where?*

   d. Records--How should the various financial transactions be recorded? Were specific forms used? What?*

   e. Control of finances--What methods of control are appropriate? Budget? Periodic evaluation? What prevented overspending?*

5. (Ask your students to clarify the following activities and events as to whether they are part of finance or not. If they cannot, you will have to review this lesson.)

   a. Workers contribute to the United Fund. (No.)

   b. XYZ Company sells a new issue of stock. (Yes.)

   c. Pronto Pre-fabs purchases a new truck. (Yes.)

   d. Plastic granules are molded into golf tees. (No.)

   e. (Add other examples from local enterprises.)

   f. (Ask your students to present examples which fall in the finance concept. Be sure to correct them if they give incorrect examples.)

6. Relate the finance concept to the concepts studied previously.

   a. (Communication--informs people of the amount of money needed. Also, various charts and graphs communicate by depicting financial status.)

   b. (Research helps define products to be made and identifies better ways to make them.)

   c. (Management--sets goals which must be financed.)

7. Now, let's apply the concepts we just discussed. (Attached is a student activity worksheet that may be completed in class or at home. If completed at home ask for the students' worksheets.) (In this worksheet there is not adequate information to answer the evaluation questions which appear after the problem. Allow the students to attempt answering the questions, but do not attempt to help them with their answers. The purpose of this activity is to show the pitfalls of poor financial planning by not identifying the needs of the enterprise. In turn, the amount of money needed was in error. Inadequate records also result in poor control which in the final analysis results in unknown facts that are necessary.)

C. Conclusion

(The teacher should also point out that a successful enterprise, be it a small, local, or a large corporation, must have financial facts in order to evaluate their own efforts.)

In the next lesson(s) we will attempt to show how to handle the finances of an enterprise.

Unit III
Lesson 13
Activity

A STUDENT ENTERPRISE

The students at John Smith Junior High have decided to establish their own business. In starting a business they can discover how a business operates and, as in any business, attempt to earn a profit.

The class, of twenty students, selected a company name of J-H Incorporated. Upon completing their organization of personnel and jobs, they investigated the production possibilities of several products. The decision to make silk-screened pennants was made when market research indicated that the company could sell about 300 pennants.

In planning for production they found a need for silk screen paint, felt, silk screens, stencil masking, scissors, rule, and x-acto knife.

At the end of a week the class had produced and sold 360 pennants at a price of 20¢ each. In checking their records they found the following:

1.	Stock to each class member (20 shares at $1 per share)	$20.00
2.	Paint (Two quarts at $1.75 per quart)	3.50
3.	Felt (20 yards at $1.25 per yard)	25.00
4.	Masking (3 sheets at 50¢ each)	1.50
5.	Silk screen frame and screen	3.00
6.	X-acto knife and blades	1.25
7.	Advertisement in school paper	2.00
8.	Student hours spent planning and producing pennants--about 50	
9.	One yard material left	
10.	One-fourth can paint left	

Evaluating This Enterprise

With the above information, let's answer some questions about the enterprise.

1. How many pennants were sold?____________________

2. For how much was each pennant sold?____________________

3. How many pennants were made, but not sold?____________________

4. How much money did the class have to start the enterprise?_______________

5. Where did the class get the money?______________________________________

6. Was there enough money to operate the company?__________ Why?__________

____

____

7. How much was spent for labor?__________ Explain__________

____

8. What was the total expense of making the pennants?__________

List the expense items:

____

____

____

____

____

____

____

____

TOTAL $__________

9. How much was received for each pennant sold?__________

10. How many were sold?__________

11. What was the total income?__________

12. The total profit made was__________

13. How much material was not used?__________ What was done with the unused material?__________

____

14. Did you answer all of the questions above?__________ Why?__________

____

15. Ask your teacher how you could obtain the information needed to allow you to give better answers.

C. Evaluation

1. How does a budget affect the goals of an enterprise?

2. What are labor costs, and how do they affect profit?

3. Could you improve the financial records discussed in the student enterprise discussed in this lesson?

   Give three ways in which you could.

   a.

   b.

   c.

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor ______________________________ Date ____________________

Unit Number __________ Lesson Number __________ Date Lesson Started __________

1. Amount of time used to complete lesson (to nearest ½ class period) ______

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain ____________________
____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain ____
____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain ____________________________
____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain ____
____

6. Which activity did you use? ____
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

____

LEVEL I - American Industry
UNIT III - Organizing An Enterprise
Lesson 14 - An Enterprise Must Finance Its Needs (2 or 3 periods)

Stout State University
Spring, 1968

I. Objectives: At the conclusion of this lesson the student should be able to:

Show how an enterprise identifies and utilizes money sources, and upon acquiring money, demonstrate methods of recording and controlling its finances in the course of doing business.

II. Scope

This lesson starts by briefly discussing the problems of poor financial planning and continues with ways of planning, obtaining, recording and controlling finances.

III. Resources

A. Instructional media

1. OT: Finance: Source
2. OT: Budget: Non-formal Listing
3. OT: Journal Form

B. Literature

Student booklet, Organizing An Industry, pages 27-41.

IV. Content Outline

A. Introduction

1. In the previous lesson we saw how improper planning and record keeping can affect an enterprise. We also found that overspending was a result of not knowing how much money was needed to operate an enterprise. This was a relatively simple silk screen pennant production activity; imagine the planning of a typical enterprise which is much more complex.
2. In this lesson we will discover how enterprises solve problems involving obtaining and controlling its money.

B. Activity and content

1. Let's start by considering some ways in which we might finance a student enterprise. Basically, there are three ways:

(Before discussing the three ways, ask the students if they can name them.)

a. (Use the owner's funds, as in a proprietorship or partnership or, we could all buy stock and form a corporation.)

OT: Finance: Source

b. (We could go into debt by borrowing money and paying interest or ask our creditors, people or companies from whom we purchased supplies, tools and materials, to give us time to pay (accounts payable) for materials purchased. Or another type of debt would be to sell bonds and pay interest to the purchasors.)

c. (Or, if we have money from sales, use it for operating the enterprise.)

2. Selling stock.

a. A common method of financing an enterprise is by selling stock in the enterprise. In this way each stockholder becomes a part owner in the business and shares in the profits of the enterprise. If we wanted to get money for our student enterprise, we too could sell stock. However, we would need to know how much money was needed, and whether people (students) would buy it. Once this has been determined we can proceed with the stock sales.

b. (Distribute Activity #1, "Buy or Sell?--Profit or Loss?" Answer questions after the students have studied the activity. This can be assigned as homework or completed in class. Allow the students a few days in which to study the market.)

Activity #1

c. (Upon completion, there are some questions the teacher should ask.)

(1) What is a share of stock?

(2) Who may purchase stock in large corporations such as General Motors or Republic Steel?

(3) What are some causes of stock price changes? (Rise or fall.)

(4) Why did our student enterprise choose to form a corporation and sell stock?

(5) Why didn't we borrow money for our enterprise?

(6) Do you think that our stock sales were performed in a manner similar to what might be found in industry? In what ways?

3. Bonds.

(As an assignment for the students, ask for reports on bonds. Why bonds instead of stock or loans.)

Activity

4. Loans.

(Another report could be requested on loans. If the teacher elects to do so, however, he could explain loans or ask a representative from a local firm to discuss loans in his classes. If the presenter is available for one class only, tape the presentation for use in other classes.)

5. Recording and controlling money.

When the enterprise actually has funds needed for operating, records and control devices must be established. An example: If our student enterprise is to plan for future spending and be aware of its financial standing, a budget and records of spending must be kept.

a. The budget.

The budget for your student enterprise is a plan or schedule of your estimated expenses. An example was our production of (identify product you produced in class) at which time we planned for and estimated the materials, tools, and labor required to make our product. This could appear in a rather non-formal listing as follows:

OT: Budget: Non-formal Listing

(1)	15 yards felt ($1.25 yard)..........	$18.75
(2)	2 quarts paint (2.00 each).........	4.00
(3)	Knife............................	1.10
(4)	Scissors.........................	3.10
(5)	Pine for frame...................	.75
(6)	Masking..........................	.25
(7)	Screen...........................	.85
(8)	Labor for 200 pennants (10 hrs.@$1).	10.00
		$38.60

Approximate cost of producing 200 pennants is $38.60.

Pennants to be sold at $.25 each = $50.00
Less cost = 38.60
Approximate profit = $11.40

(After showing the students how a simple budget might be developed, the teacher should bring out the similarity between this budget and one that might be developed for the home, a local enterprise, and a large corporation.)

b. The Journal.

(On the next page is an example of a journal form. This form is the record of financial transactions and, although somewhat simplified, is similar to the record used in businesses.)

Activity #2: See blank journal form at the end of this lesson.

OT: Journal Form

(Note the following columns:)

Date: The date entered is the date of entry, but is also the date the transaction took place.

Description: This is a brief explanation of the transaction. (i.e., sale of products, materials purchased (3 board feet pine), or special vise.)

Account: Classification of financial information. This is the term (or, as is also used in business, a number) used to identify a category or classification of items that are being listed in the journal. (Use of this column is optional in Level I.)

Received: The left-hand side or column where entries dealing with incoming funds are listed.

Paid Out: The right-hand column where expense items are listed. It is an acknowledgement of payment on a debt.

GENERAL JOURNAL

PAGE

	DATE	DESCRIPTION OF ENTRY	ACCT NO	DEBIT	CREDIT	
1						1
2						2
3						3
4						4
5						5
6						6
7						7
8						8
9						9
10						10
11						11
12						12
13						13
14						14
15						15
16						16
17						17
18						18
19						19
20						20
21						21
22						22
23						23
24						24
25						25
26						26
27						27
28						28
29						29
30						30
31						31
32						32
33						33
34						34

(NOTE: Industry uses a more sophisticated system for keeping financial records, however, Level I materials will not contain the details of the typical industrial record system. If time permits, the business teacher in your school system might be used in team teaching this lesson, or as a consultant.)

(Although only a few students will actually be making journal entries for the student enterprise, each student should understand the purpose of a journal and how it is used by industry.)

(NOTE TO TEACHER: Study this lesson carefully before attempting to teach it, especially the journal form. You must be able to show how entries are made and what happens when materials are purchased, then turned into products, and sold for a profit.)

c. (Use journal data to compare performance against budget.)

d. (Comment on auditing.)

C. Conclusion

In this lesson we have studied the ways in which an enterprise acquires and controlls its finances. We have also seen a method of recording financial transactions and can understand the need for such records. In our next lesson we see how we can finance our student enterprise and identify the similarities of our method as to a local enterprise.

1. What are some items Wes might budget for in Pronto Pre-fabs?
2. What are some items local enterprise might budget for?
3. What are some journal entries you might find in Pronto Pre-fabs?
4. What are some journal entries you might find in local enterprises?

V. Evaluation

A. If you purhcase a share of stock in Ford Motor Company, what does this stock represent?

B. In some cases, a company may sell bonds instead of stock. How do bonds differ from stock?

C. If your student enterprise needed to borrow $50 in order to get started, how would you get the money? Where?

D. What is a budget? Who uses a budget?

E. What items might be found in a budget?

F. Why are budgets made?

G. A journal is used to record the financial transactions of a company. What is the purpose of this form?

H. (Using a journal form, ask the students to make entries related to your student enterprise.)

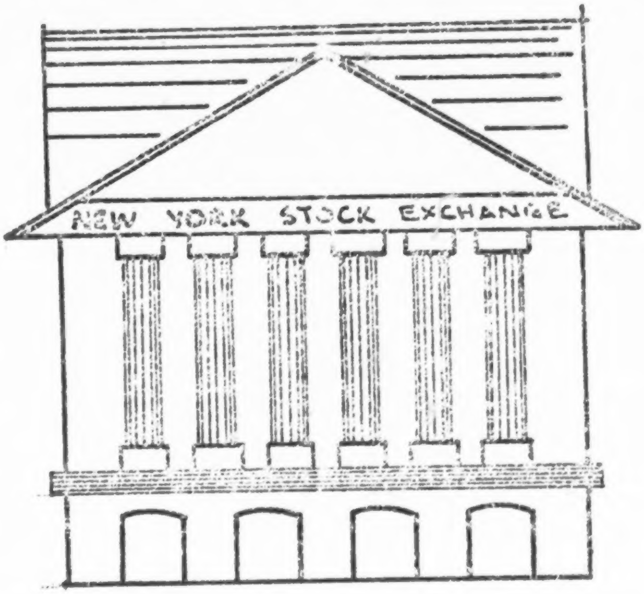
I - III - 14

7/8

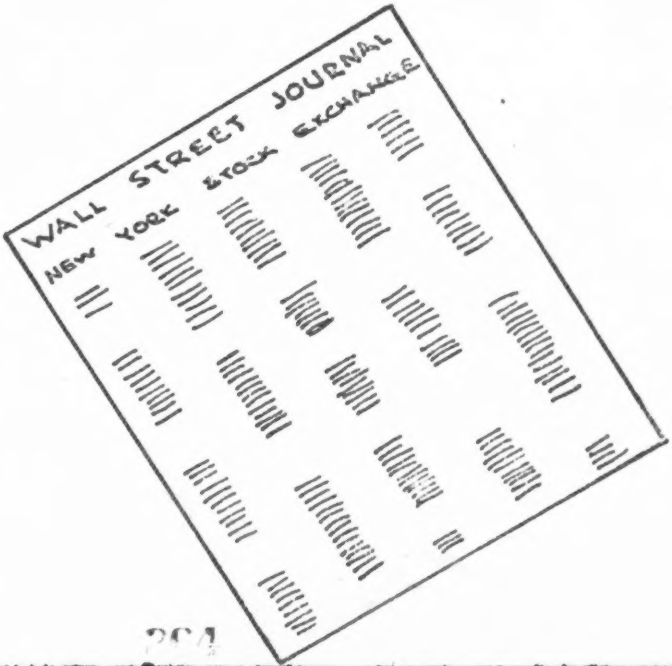
Unit III
Lesson 14
Activity #3

BUY OR SELL?--PROFIT OR LOSS?

Many times we hear on the radio "and now the Dow-Jones stock averages." What does this mean? Or, as we page through the daily newspaper we notice a page that has hundreds of small print, funny little words and numbers that have no meaning to us. What are they for?



Both of these questions should be answered by the end of this assignment sheet.



This is how a typical stock market report will look in a newspaper.

NEW YORK STOCK MARKET

STOCKS	DIV.	SALES (HDS)	HIGH	LOW	LAST	NET CHG.
Admiral	.6	235	44 3/8	42 3/4	43	-1
Aeroquip	.6 b	3	40	40	40	- -
Air Prod	.20	47	37 1/8	34 1/8	34 1/2	+1 5/8
Air Red	2.50	64	61 1/4	58 1/2	58 5/8	-1 1/8
AJ Industries	- -	45	5 5/8	5 3/8	5 1/2	- -
Ala Gas	1.80	1	33 1/4	33 1/4	33 1/4	- -
Alberto Culv	- -	82	12 1/4	12 1/8	12 1/4	- -
Alcan Alu	.90	430	32 7/8	30 7/8	32	-1 1/4
Coca Cola	1.90	119	78 7/8	78 1/8	78 1/2	-1/8

(b - Plus 2% stock dividend)

On the next page is an explanation of this market report.

(This method of listing the New York Stock Market may not be the same in all papers, but it will be quite similar.)

NOTE: Stock prices are in dollars and fractions of 1/8's.

Look at the extreme left of the stock listings. These abbreviations represent the various companies or corporations that offer shares of stock in their corporation. (If you know the name of the corporation you want, it is quite easy to understand the abbreviations.)

Find Coca-Cola under "Stocks." The first group of numbers you see is the amount of dividend the shareholder received for each share of stock of Coca-Cola he owned. If a letter appears behind this, such as "b" after Aeroquip, check the explanation insert near the bottom of the page. How much was the dividend for Coca-Cola?______________

The next group of numbers represents the number of Coca-Cola shares in hundreds that were sold that day. How many hundred were sold that day?______________

Following the sales you will see the high for the day. In other words, this is the highest price paid per share that day. What was the highest price paid for Coca-Cola that day?______________

The next group is the low which means the lowest price paid that day per Coca-Cola share. What was the low?______________

In the next column the last or closing price for the day is shown. What was the closing Coca-Cola price?______________

In the last column the net change is listed. This is the difference between yesterday's closing and today's closing price. It may be a gain (+) or a loss (-). What was the net change for Coca-Cola?______________

Now let's see if you understand what you have read. See if you can answer the following questions:

1. What was Admiral's closing price?__________________
2. What was the net change of Alabama Gas?__________________
3. What was the day's high for Air Products?__________________
4. What was the day's low for Aeroquip?__________________
5. How much of a dividend, per share, did the shareholders of Alabama Gas receive?__________________
6. What was Alcan Aluminum's closing price?__________________
7. How many shares of Admiral were sold?__________________

Pretend that you have $1,000 to invest in the stock market and that you can select one or many corporations in which to purchase shares. Use the "Stock Market Quotation Form" found at the end of this activity and keep a record of your shares.

It is wise to study the stock and economic trends before you select and purchase stocks. (Many stock purchasors use a stock broker for this.)

To help you do this, you could follow the Dow-Jones stock averages, which is a daily report on four different types of stock; 30 industrial rails, 20 railroad, 15 utilities, and 65 stocks composite averages. They help show you the market trend, or if the prices are rising or falling. Do you know what causes market trends? Could it be a company decision to merge with another; a change in government financial policy, a strike by employees of a company; or just a history of financial success for a company? Look at the news clippings on the next page and state how you think the stock(s) would react to news like this. Would prices go up, down, or stay the same? Why?

Gillette 1st Period Net Expected to Be Record

Glass Union Summons Full Bargaining Panel To Discuss New Offer

Phelps Dodge Corp., just getting back into copper production after a long strike, was ordered by the Government to reserve 50% of its April copper production for defense needs and the "remainder for badly-needed civilian consumption." Industry sources interpreted the directive to mean Phelps Dodge will be relied upon almost exclusively to supply military requirements of about 25,000 tons of copper monthly.

Auto Output to Climb During Week; Overtime Continues to Increase

International Harvester Holders Vote to Boost Firm's Capitalization

In the five instances above, the stock went up almost immediately. Why do you think the prices on these stocks went up?

With a few days to study the market, prepare to invest the $1,000 mentioned earlier. Investigate your proposed investments, then buy the stocks you have selected. Use the form on the next page to record your purchases and to track the daily prices.

I - III - 14

STOCK MARKET QUOTATION REPORT FORM

Name ______________________________ Date ______________

Name of industry ______________________________

Source for readings (name of paper) ______________________________

Record your readings (closing price):

	HIGH	LOW	CLOSING
1st Reading	______	______	______
2nd Reading	______	______	______
3rd Reading	______	______	______
4th Reading	______	______	______
5th Reading	______	______	______

Low for the reading period ______________

High for the reading period ______________

Calculate your profit or loss by figuring the difference of the price of your shares of stock at the 1st reading's closing price and the closing price when you sold it.*

Show your work.

Profit or loss (Circle correct result).

*NOTE: You may buy and sell stock whenever you wish, however, you must not purchase more than the original $1,000.

AMERICAN INDUSTRY--LEVEL I

JOURNAL

Page_______

DATE		DESCRIPTION OF ENTRY	ACCOUNT CLASSIFICATION OF FINANCIAL INFORMATION	RECEIVED	PAID OUT	
Sept.	9	Sale of stock (20 shares				1
		at $1.00)		20 00		2
Sept.	10	materials purchased (8 yds.				3
		felt at $.75 yd.)			6 00	4
Sept.	12	materials purchased (1" pine				5
		random)			1 75	6
Sept.	12	materials purchased (1/2 yd.				7
		silk for screens)			90	8
Sept.	14	Sale of stock (4 shares				9
		at $1.00)		4 00		10
Sept.	14	Tools purchased (X-acto				11
		knife and blades)			1 35	12
Sept.	14	materials purchased (silk				13
		screen paint - 2 qts.)			4 00	14
Sept.	20	Sale of products (silk				15
		screened pennants —				16
		100 at 25¢ each)		25 00		17
Sept.	23	Sale of products (pennants				18
		40 at 25¢ each)		10 00		19
Sept.	25	Purchase of materials (3 yds.				20
		felt at 75¢ yd.)			2 25	21
Sept.	26	Tools (purchase of blades				22
		for knifes)			75	23
						24
						25

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor________________________ Date________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain______________________
____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain______________________
____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain______________________
____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain______________________
____

6. Which activity did you use?______________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

____

LEVEL I - American Industry
UNIT III - Organizing An Enterprise
Lesson 15 - Applying the Concept of Finance (3 periods)

Stout State University
Spring, 1968

I. Objectives: At the conclusion of this lesson the student should be able to:

Apply the concept of finance by demonstrating a method of acquiring and controlling money for an enterprise. Similarities in enterprises, especially those related to the concept of finance, will be emphasized.

II. Scope

This lesson is the last in the series of *finance* lessons and should serve as the capstone for this concept area. Activities should involve the acquiring of money for a student enterprise and the aspects of recording and control. An outside speaker from local industry or the business department in your school may also be requested to present the function of finance in an enterprise.

III. Resources

A. Instructional media

OT: *Sample Budget*

B. Literature

1. Student booklet, *Organizing An Industry*, review pages 27-41.

2. Wheeler, *Business: An Introductory Analysis*, Harper & Row, 1958.

IV. Content Outline

(*NOTE TO TEACHER*: You may want to delay some of the activities of this lesson and use them in Unit VII. You will know after reading the lesson.)

A. Introduction

1. In the previous lesson we found that money could be borrowed, and the borrower paid interest. *What are some examples of borrowing?* We also found that an enterprise might get money be selling shares of ownership in the business. *Can you cite examples?* In this lesson we will study the specific tools used in acquiring and controlling money.

2. How did Wes get money for Pronto Pre-fabs?

3. What other ways could Wes have used in getting money?

4. Why didn't Wes sell bonds?

B. Activity and content

1. (Check the budget in Activity #1, Lesson 14 of this unit. Using this budget as an example have the students consider the possibility of financing a student enterprise. They should investigate the possibility of selling stock and/or borrowing money. If stock is to be sold, the following must be determined:)

   a. How much money is needed to start the business? (The amount to be obtained by specific methods will vary, depending upon how money will be obtained.)

   Refer to Pronto Pre-fabs.

   b. Who will be responsible for handling financial transactions? (Usually a director or supervisor of finance is selected or elected.)

   c. Should shares of stock be sold? To whom will shares be sold? (Usually to class members only. Sample stock shares are at the rear of this lesson.)

   Sample stock certificate.

   (This activity may require the teacher and/or students to investigate school regulations pertaining to sale of items such as stock or a manufactured product. Use this as an example of how government affects industry.)

2. Borrowing money--Activity #2.

   (If the decision is made to borrow money, the amount and source will be decided upon. Once the amount has been determined, allow the students to check interest rates at banks, loan companies, etc. to determine the source. In making these decisions the advantages and disadvantages of borrowing should be discussed.)

3. Budgeting.

In our homes and with our personal finances we can usually find some form of budgeting. By estimating our expenditures for a given period of time we are budgeting. Some budgets are short term and run for a week or two. Other budgets might run for a longer period of time, a year or even ten to twenty years. (Refer to the simple budget in Lesson 14 of this unit and the activity below.)

In order that historical data may be gathered for your company, a budget that shows the estimated and actual expenditures may be used. (Show an example of the form below.)

OT: Sample Budget

SAMPLE BUDGET

Sunday Products, Inc.
January, 1968 through March, 1968

Budget Item	Budget Estimate	Actual
Sales	$5,375	$5,860
Expenses		
Materials	$2,400	$2,550
Wages	600	615
Salaries	250	270
Rent	300	300
Depreciation	200	200
Taxes	85	90
Other Expenses	138	14
Profit	$1,402	$1,690

NOTE: To get profit, total the expenses and subtract sales.
- Can you think of items that might be included in "other expenses"?

- What purposes does this record serve?

(A sample form for budgeting is at the end of this lesson.)

4. Recording business transactions.

The Journal.

(The recording of business transactions is explained in the previous lesson.)

5. The Status of a Business--The Balance Sheet.

(A simple balance sheet may be prepared as part of this lesson, however, a more formal balance sheet appears in Unit VII.)

The balance sheet is composed of three main parts:

(1) the assets, which is what the company owns,
(2) the liabilities, or what the company owes, and
(3) the owners' equity (also called net worth or capital) which is the net claim that owners have on the assets of the company. Owners' equity includes profit and stock.

(Teacher: Use the balance sheet from Unit VII to explain, briefly, the function of it.)

6. Profit and Loss Statement.

Also referred to as the Income or Operating Statement. (Refer to this as the Operating Statement.)

(Teacher: Refer to the operating statement in Unit VII.)

An operating statement is generated to show (1) the flow of money, (2) the cost of making money, and (3) the results, either profit or loss.

(NOTE: Make certain that your students understand the difference in the operating statement and the balance sheet.)

7. Audit--checking the records for accuracy.

In business, the records are periodically checked for accuracy. The audit in your student enterprise is similar to that of a larger business, except on a smaller scale. An audit would include:

a. Checking company inventory (raw material, parts, etc.) to determine whether the actual items in stock agree with your records.

b. An audit of property, (jigs, fixtures, machines, tools, etc.) to determine whether the company has the property noted in the records.

c. All liabilities (money borrowed, money owed for tools, materials, equipment, etc.) should be checked for accuracy.

d. Stock audit.

All stock should be checked to assure accuracy in the amount of stock in circulation.

8. In what ways could a business use the data gathered for a budget showing estimated costs and actual costs?

9. How do you think (identify a local enterprise) gets money in order to operate? Do you think they have a budget or estimate of future spending? What types of records do you think they keep? Do you think they operate different than (identify another two or three local enterprises)? Why?

10. Other activities.

(Attached is a sample outline which could be used by an outside speaker from industry or from the business department from your school. Do not expect a speaker to cover all of the areas on the outline, but discuss the areas of finance he wants to talk about. Try to allow about ten minutes for questions.)

C. Conclusion

(Although the students may not have had time to solve problems related to locating, budgeting, recording, reporting, and auditing finances, the teacher should have explained and discussed each. Time should have permitted students to experience the problems involved in locating, budgeting, recording and some auditing. If not, notes should be made in Unit VII at which time the omitted areas should be covered.)

Discussion Questions:

1. In Pronto Pre-fabs, Inc. who handled the financial transactions?

2. How did Pronto Pre-fabs decide on the amount of money needed to start the company?

3. What method of getting money was used? Was this the best method? Why?

4. What are some ways in which financial information is passed from department to department? (Communication) What forms? What devices?

5. What is a budget? How does management determine what is included in a budget? Is research involved? In what way?

V. Evaluation

A. Give two reasons why a company might borrow money rather than sell stock.

1.

2.

B. What is the purpose of a budget?

C. What information is found on a balance sheet?

D. What would you check if called upon to audit our student enterprise?

E. How do you think your audit compares to an audit of a local enterprise?

Date____________________

Budget For

____
(Company Name)

for period from________________ through_______________

Budget Item	Budget Estimate	Actual

No. ______________________

Name ______________________

____

Date ______________________

No. of Shares ______________

Company ___________________

____

Cost/Share _________________

Total Cost _________________

Issued By __________________

____

No. ______________

This certifies that ______________________________________
is the owner of ________ shares of capital stock

of ____________________ This stock is transferrable only on the books of the company by the holder thereof in person upon the surrender of this certificate properly endorsed.

In witness thereof, the said corporation has caused this certificate to be signed by its duly authorized officers and to be sealed with the seal of the corporation this ______ day of ______________ , A.D. 19 __________

____
Secretary

____
President

No. ______________________

Name ______________________

____

Date ______________________

No. of Shares ______________

Company ___________________

____

Cost/Share _________________

Total Cost _________________

I[illegible]d By __________________

____

No. ______________

This certifies that ______________________________________
is the owner of ________ shares of capital stock

of ____________________ This stock is transferrable only on the books of the company by the holder thereof in person upon the surrender of this certificate properly endorsed.

In witness thereof, the said corporation has caused this certificate to be signed by its duly authorized officers and to be sealed with the seal of the corporation this ______ day of ______________ , A.D. 19 __________

____
Secretary

____
President

Unit III
Lesson 15

SPEAKER OUTLINE FOR FINANCE AREA

I. Your (speaker's) relationship to the world of finance.

II. Need for funds.

    A. Fixed capital.

    B. Working capital.

III. Source of funds.

    A. Internal.

        1. From ownership.

        2. Stock sale.

    B. External debt.

        1. Loans.

        2. Bonds.

IV. Cost of using money.

    A. Money market.

    B. Risk.

    C. Potential profit.

V. Control of finances.

    A. Budgets.

    B. Evaluation.

        1. Performance.

        2. Net worth.

        3. Unit cost.

        4. Verification.

            A. Audit.

            B. Balance sheets.

            C. Profit and loss statements.

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor______________________________ Date____________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain______________________
____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain______________________
____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain______________________
____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain______________________
____

6. Which activity did you use?______________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items________________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain__________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor______________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made___________________________

LEVEL I - American Industry
UNIT III - Organizing an Enterprise
Lesson 16 - Introduction to Property (2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

A. Define property and cite five examples of property as used in a local enterprise plus five examples of property as used in a student enterprise for the production of goods and services.

B. Classify property as permanent or temporary and as tangible or intangible plus cite examples of each.

C. Provide some basic reasons why business plans and how it plans.

II. Scope

This lesson deals with the term property in a conceptual manner. We are concerned with the definition and its application to an actual problem situation. An attempt to apply our concept to various situations will be made.

III. Resources

A. Instructional media

1. First level film catalog.

2. OT: Property.

3. OT: Property: Classification.

4. OT: Property: Planning.

5. OT: Property: Control.

6. OT: Property: Maintenance.

7. OT: Property: Disposition.

B. Literature

1. Student booklet, Organizing an Industry, pages 43-48.

2. American Industry Resource Material, Property.

3. Plant Layout; Factors, Principles, and Techniques by Ruddel Reed, Jr., 1961, Richard D. Irwin, Inc., Homewood, Illinois.

IV. Content Outline

A. Introduction

1. What does the word "property" mean to you? We have talked about the use of buildings, machines, etc. in preparing for, producing, and selling products. Now, consider everything an enterprise owns and in most cases uses in producing.

2. On a blank sheet of paper give your definition of property. Then give as many examples, at least five, of property. Remember, consider a local enterprise that you are familiar with.

3. (Have each student read his definition of property and cite about five examples of property.)

B. Activity and content

1. (While the students are reading their definitions of and citing examples of property, the teacher should note the various types of property used as examples. He should also note whether the attributes of the definition are brought out.)

2. The definition of property is: Holdings or possessions of an enterprise upon which a dollar value may be placed.

3. (Project OT: Property.) (Stress the types of items such as land, buildings, equipment, tools, etc. which will be cited as examples. Group them if it will help make the types of property clear. The basic definition that (1) property consists of holdings or possessions of an enterprise (2) upon which a dollar value may be placed--is the point of emphasis.)

OT: Property.

4. (Apply this definition to the students own life.) Can you name some items which you own that will fit the definition of property? How about items your parents own?

5. In what way is property related to the other areas of industry we have studied? Can you relate property to finance, management, research, or communication?

6. In your definitions and in relating to other concept areas we have discussed two types of property, tangible or intangible. (Most of the discussion was probably centered about tangible property.)

7. Let me define the two terms.

   a. (Project OT: Property with overlay.) Tangible property: Property which can be seen, felt, handled, or touched--items of a physical nature. Such items might include: buildings, land, etc. Can you name some other examples?

OT: Property.

   b. Intangible property: Property which appears in the form of estimates (good will) or on paper (cash, stocks, bonds, patents, etc.)--things which are not physical items. What are some examples of intangible property?

      Answer: Franchises, copyrights, right aways on property, etc.

8. Property may also be classified according to life of that property. It would be either permanent property or temporary property. (Project OT: Property: Classification.)

OT: Property: Classification.

   a. What is permanent property?

      Answer: Permanent property is property that will be held until it has performed all the services it is capable of offering. Certain buildings and equipment would be classified as permanent because of their purposes. Can we identify some permanent equipment in our lab area?

   b. Temporary property is property considered to have a short-term life expectancy or may be property which may be turned into cash within a short period of time. Some examples of temporary property would be: paper clips for the office, bolts that will be sold, lumber for a home, etc.

9. Activity #1

   On the student activity sheet entitled, Property Classification, identify five pieces of property that might be owned by a local enterprise.

Activity #1

Distribute activity sheets: Property: Classification.

Classify it as tangible or intangible and as permanent or temporary. Give a reason why it has been classified as permanent or temporary.

10. (Give the students about 15 minutes to complete this activity sheet. It could be a home assignment if time doesn't allow the work in class.)

11. (When the students have completed the activity sheet, select various students and have them identify a piece of property plus how and why it was classified. You should remind them of the expected life of a particular piece of property that makes it permanent or temporary.)

12. (Collect the activity sheets for review.) (This should complete the first day of this two period lesson. Review the terms before closing the period.)

13. Tomorrow we will find how and why a business must prepare detailed plans.

End of first period.

14. Today we are going to discuss property planning.

15. If you decided to build a new house for your family, what is one of the first things you would consider doing? (Students should come up with the theme of property planning. Planning for such things as the six attributes of property planning listed below.) (Tie this planning with the concept of management.)

16. (Project OT: Property: Planning.) Business enterprises spend much time planning for production, research, finance, sales, property, etc. Property planning is part of this and means the details necessary prior to gaining property and/or determining utilization and maintenance of property. What are some things considered in property planning?

OT: Property: Planning.

Answer: They are:

a. Quantity--the amount of property being planned.

b. Location--place where the property is being planned.

Unit III
Lesson 16
Activity #1

Name_______________
Date_______________

PROPERTY CLASSIFICATION

In the space provided below identify five pieces of property that could be found in a local enterprise. Classify as tangible or intangible and as permanent or temporary. State your reasons for classifying as permanent or temporary.

PROPERTY	TANGIBLE OR INTANGIBLE	PERMANENT OR TEMPORARY	WHY
1.			
2.			
3.			
4.			
5.			

c. Purpose--planning as related to the intended use of the property.

d. Type--planning considerations in relation as to tangible or intangible property.

e. Plant layout--physical plan of tangible property.

f. Maintenance--plan which is concerned with the upkeep of property.

(Project OT: Property: Planning with overlay.) In all cases, business enterprises plan for buildings, equipment, and materials which are needed to produce goods and services.

OT: Property: Planning.

17. Activity #2 (Use if desired)

Property planning of a local business.

Activity #2

(Sketch the floor plan of a well known local business on the board (super market, drug store, or service station are examples). Through a discussion of the layout plan see if the students can draw some conclusions as to the planning of the business. Examples might be such as:)

a. Fresh produce cases in super markets might be found at the entrance, first aisle, or just before "checkout" because of the perishable nature of the goods which must be moved before canned goods.

b. Frozen foods are usually just before "checkout" because of the thawing possibility.

c. Fresh meats are in the rear because the large display space is required and access to the cutting and packaging room.

d. Service stations are located on busy city streets and state and federal highways because of the volume of traffic passing that given point.

18. Activity #3 (Use if desired)

Activity #3

(The same activity could be done by interviewing a store manager or owner. Student could interview outside of class and present the interview in class as to the reason the store layout is as it is. Maybe the owner or manager would be able to suggest some improvements for better efficiency.)

Maintenance

a. What does the word "maintenance" mean to you? (Project OT: Property: Maintenance.) What are some examples of maintenance you perform around your home? (List examples on the chalkboard. Later these can be divided into preventive and corrective maintenance.)

OT: Property: Maintenance.

b. Maintenance is the upkeep and/or repair of property for the purpose of keeping a desired condition. It is important that all persons take the responsibility for maintenance of property. Maintenance falls into two types. (Project OT: Property: Maintenance with overlay.)

   (1) Preventive--which is actions designed to foretell undesireable happenings.

   (2) Corrective--maintenance to return property to an established standard through the replacement and/ or adjustment.

   What are some examples of preventive maintenance bicycle repair? Of corrective maintenance bicycle repair? What are some examples of preventive maintenance in the school building?

19. Activity #4 (Use if desired)

Activity #4

(Have the students take the list of maintenance examples and list the examples as preventive and corrective. Make certain that your students understand the "why" of maintenance.)

20. (Control of property.)

a. What controls, if any, are imposed upon property you own? House?

Answer: Building code, zoning regulations, city ordinances, etc.

Car?

Answer: License, speed laws, parking regulations, insurance laws, safety regulations, etc.

b. As we have illustrated, there are few things if any that do not have some form of control to restrict or limit their usage. (Project OT: Property: Control--do not use window at this point.) What would happen if we would lift all controls concerning property? Would you want to live in such a city? Why or why not? Are you in favor of controls? Why? (Try to get an answer that controls are made to protect property of the majority of the people.)

OT: Property: Control.

21. What kind of controls are imposed on your property? Let's look at mediums that affect property. (Project OT: Property: Control with window.)

a. Human--limitations placed on property due to the nature of man.

b. Natural--limitations placed on property due to environmental conditions.

c. Financial--limitations placed upon property because of cost or money available.

d. Government--regulations imposed through federal, state, or local policies.

e. Union--regulations imposed through actions of organized labor.

f. Company--regualtions imposed as a result of company action.

22. (The instructor may want to spend some time discussing only a couple of the common control mediums such as human, company, and governmental. It is not our intent that the student have a deep understanding of all six mediums at this time.) (Instructor: Use your own judgement.)

23. Activity #5

Activity #5

(List on a sheet of paper or on a chalkboard 12 to 14 illustrations of control mediums imposed on property. Have students indicate by the word government, human, etc. the control medium used.)

24. (Disposition of property.)

a. Suppose it becomes necessary to sell or get rid of some of the enterprise's property. How can this be accomplished?

Answer: Sell, junk, use it up, etc.

In other words, you are illustrating ways of disposition. (Project OT: Property: Disposition.) Disposition of property means to consume or get rid of company property. What are some of the common ways to dispose of property?

OT: Property: Disposition.

Answer: a. Expend--property that is used up or consumed.

b. Sold--property that has been exchanged for cash.

c. Depreciate--property that decreases in value because of wear, deterioration, or getting old.

d. Destroy--property that has been taken out of existance or neutralized.

e. Will--the disposition of property by giving it away.

25. (NOTE: The instructor may not wish to cover all five methods of disposition. Use your own judgement as to the capabilities of the class and time. It may be better to cover only one or two if the students can get an understanding of disposition.)

26. Activity #5

Activity #5

Illustrate some property such as:

Package the last 500 pounds of potatoes.	(Expend)
Sell a ten foot strip of land at the rear of the plant site.	(Sold)
Reduce the value of 50 pneumatic drills to $35 each because of their age and use.	(Depreciation)
Tear down an old building.	(Destroy)
To give away 25 acres of company land for a school.	(Will)

(NOTE: Ask for other examples from the students.)

C. Conclusion

Business enterprises are in need of property such as buildings, equipment, and materials to produce goods and services. Such property is known as tangible property. There is another type of property called intangible property which is of value to a business enterprise. Illustrations of such property would be patents, franchises, cash dollars, holdings of stocks and bonds, good will, and right of ways to land and sea. All property must be maintained to preserve a desired condition. Property is subjected to various controls which will determine its usefulness. The dispostiion of property can be accomplished by various methods such as selling, destroying, willing, depreciation, and expending.

V. Evaluation

1. In your own words, define property.

Select the best answer:

2. Property that can be seen, felt, handled, or touched is referred to as:

   A. New
   B. Tangible
   C. Intangible
   D. Copywritten

3. Property which appears in the form of estimates or on paper of a non-physical type is referred to as:

   A. Food
   B. Purchased
   C. Tangible
   D. Intangible

4. Property which will be held until it has performed all services it is capable of performing is referred to as:

   A. Lifetime
   B. Permanent
   C. Temporary
   D. Categorized

5. Property considered to have a short-term life expectancy is called:

   A. Permanent
   B. Temporary
   C. Categorized
   D. Tangible

6. Identify three of the following types of property:

A. Permanent

(1) ______________________________

(2) ______________________________

(3) ______________________________

B. Temporary

(1) ______________________________

(2) ______________________________

(3) ______________________________

C. Tangible

(1) ______________________________

(2) ______________________________

(3) ______________________________

D. Intangible

(1) ______________________________

(2) ______________________________

(3) ______________________________

7. You are planning a new self-service laundry for our city and must make all planning decisions. Show how you would proceed with the site selection, building size, building layout, and equipment.

B. Activity and content

Your assignment for today was to complete the student activity sheet, Why Is Our City Here?

Assign this one or two days prior to the lesson--Why Is Our City Here? Explain when assignment is made.

1. Let's start by looking at this activity sheet and identifying the products of our city. (Have a few students identify the products they have listed. Write them on the board.)

2. Can you identify other products not shown on the board?

3. (List other products, then underline the products for which the city is most widely known.)

4. Now we will give our reasons why our city is located here. (Attempt to identify the obvious reasons first, then try to get some history on your city. Often certain individuals were responsible, but geography usually enters as a major reason.)

5. (After the students have given their answers ask them about local transportation. raw materials, water, and the terrain. You may get some additional reasons why the city is located in a particular area.)

6. Now that we have discussed the reasons why our city has been located here, let's select some businesses and attempt to determine why they have selected their sites for doing business.

7. (The teacher should have each student, or teams of two or three students, visit a selected business and determine why the site for business was chosen. After studying the floor layout the students should also ask the reasons for locating merchandise or advertisements in a particular place within the store.)

8. (Have the students tell about their visits to a local enterprise and discuss the reasons given for location of the business and layout of the floor plan.)

LEVEL I - American Industry
UNIT III - Organizing an Enterprise
Lesson 17 - Location and Layout Are Important to a Business (2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Determine why an enterprise locates in a particular area, how they select equipment, and the reasons for arranging the building interior in a certain way.

II. Scope

This lesson is concerned with developing an understanding that property, especially buildings and equipment, must be selected or designed in a manner appropriate to their use to the business.

III. Resources

A. Instructional media

1. Layout grids for floor plan sketches (¼" square).

B. Literature

1. Student booklet, Organizing an Industry, pages 43-48.

2. American Industry Resource Material, Property.

IV. Content Outline

A. Introduction

1. During the next two class periods we will attempt to determine why a business selects a certain place to locate. We will also prepare some simple floor plans of our homes, the laboratory, and possibly a local business. Finally we will discuss proper selection of equipment.

2. Some time will be spent investigating the reasons why our community and possibly other communities grew where they did.

B. Activity and content

Your assignment for today was to complete the student activity sheet, Why Is Our City Here?

Assign this one or two days prior to the lesson--Why Is Our City Here? Explain when assignment is made.

1. Let's start by looking at this activity sheet and identifying the products of our city. (Have a few students identify the products they have listed. Write them on the board.)

2. Can you identify other products not shown on the board?

3. (List other products, then underline the products for which the city is most widely known.)

4. Now we will give our reasons why our city is located here. (Attempt to identify the obvious reasons first, then try to get some history on your city. Often certain individuals were responsible, but geography usually enters as a major reason.)

5. (After the students have given their answers ask them about local transportation. raw materials, water, and the terrain. You may get some additional reasons why the city is located in a particular area.)

6. Now that we have discussed the reasons why our city has been located here, let's select some businesses and attempt to determine why they have selected their sites for doing business.

7. (The teacher should have each student, or teams of two or three students, visit a selected business and determine why the site for business was chosen. After studying the floor layout the students should also ask the reasons for locating merchandise or advertisements in a particular place within the store.)

8. (Have the students tell about their visits to a local enterprise and discuss the reasons given for location of the business and layout of the floor plan.)

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Assign this one or two days prior to the lesson--Why Is Our City Here? Explain when assignment is made.

1. Let's start by looking at this activity sheet and identifying the products of our city. (Have a few students identify the products they have listed. Write them on the board.)

2. Can you identify other products not shown on the board?

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6. Now that we have discussed the reasons why our city has been located here, let's select some businesses and attempt to determine why they have selected their sites for doing business.

7. (The teacher should have each student, or teams of two or three students, visit a selected business and determine why the site for business was chosen. After studying the floor layout the students should also ask the reasons for locating merchandise or advertisements in a particular place within the store.)

8. (Have the students tell about their visits to a local enterprise and discuss the reasons given for location of the business and layout of the floor plan.)

Unit III
Lesson 17
Activity

Name_______________
Date_______________

WHY IS OUR CITY HERE?

Complete this assignment sheet by using your city as the example.

1. City______________________ State_________________________

2. What products or type of products are produced in this city or community?

3. Do you believe that the location of the city suits the type of products made there?

4. Give four reasons why the city is located in the area it is.

A. ____

B. ____

C. ____

D. ____

9. Next we will each make a floor plan of our lab. Each of you will be given a sheet of grid paper. Each square (¼ inch) represents one foot. (Demonstrate the preparation of a floor plan. Don't forget the equipment needed.)

10. (The teacher should have a plan of his lab area on an overhead transparency. It can be used later for production planning.)

11. (After the students have completed their floor plans, show the plan prepared for the overhead. Leave it on the screen, circulate about the room and comment as to their ability to get across a message intended in their plan.)

12. (Discuss how this plant layout affected production in the unit one enterprise.)

Provide grid paper as shown on the next page. Demonstrate the preparation of a simple floor plan. Show some of the equipment.

C. Conclusion

1. We have studied our city with respect to its location. Next we discussed selected businesses and their reasons for selecting particular sites for doing business and also their reasons for laying out the interior in a certain way. Finally we actually made a floor plan of our laboratory.

2. What have we really been studying? Was it just our city? Was it a few businesses? Was it only our lab? Haven't we been studying property in general? We should be able to apply our findings to other cities, other businesses, and other floor plans.

3. (In concluding the lesson the teacher should attempt to apply the concept of property, as mentioned in the previous paragraph, to other cities and businesses.)

V. Evaluation

1. Given a certain business firm that you are familiar with, state three reasons why you feel they elected to locate where they did.

A. ____

____

B. ____

____

C. ____

____

2. Referring to question above, consider the equipment in the building. Would you have selected the same equipment? Why?

____

____

____

____

3. Using grid paper provided, sketch a simple plan of your home. Locate only the equipment in the kitchen.

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor________________________ Date________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________
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3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________
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4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________
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5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________
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6. Which activity did you use?____________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ______

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ______

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ______

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ______

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______

LEVEL I - American Industry
UNIT III - Organizing an Enterprise
Lesson 18 - Preserving the Value of Property (1 period)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Illustrate some basic ways in which industry preserves the value of their property.

II. Scope

By using the laboratory and/or a local enterprise as examples, the student should gain an understanding of planning for and maintaining property.

III. Resources

A. Instructional media

B. Literature

1. Plant Layout: Factors, Principles, and Techniques by Ruddel Reed, Jr., 1961, Richard D. Irwin, Inc., Homewood, Illinois.

IV. Content Outline

A. Introduction

1. We have discussed the ways in which industry determines places to locate and the reasons for selecting a particular site. We have also found how and why a particular enterprise lays out a floor plan. Now, let us determine how these plans affect the future use and upkeep of property.

2. Today we will consider reasons for a particular layout in a local business and in our school. Finally we will actually do some maintenance of equipment in our laboratory.

B. Activity and content

1. (First the teacher should identify a local business that is familiar to the students. He should spend a few minutes discussing the reasons for their locating in that area. The same should be done with the school building.)

The teacher should visit this business and ask why they located in this area and why their floor plan was made in a particular way.

2. Now we will discuss the reasons for a particular floor plan in the ____________ (business discussed previously). (Bring out the reasons for arranging the floor plan in one way. Discuss alternatives, then relate this plan to the planning of other businesses.)

3. Next we will examine the maintenance of our school, but while we are doing this we will relate school maintenance to the maintenance of a building that houses a business.

4. How is the exterior of this building maintained? (Bring out the ways in which a brick building is maintained by cleaning the stone or brick, painting of those materials requiring it, calking, roof maintenance, doors, etc. You may also discuss the maintenance of the grounds.)

5. Let's consider the interior now. How is it maintained? (The students should mention the cleaning and repairing of floors, cleaning and painting of walls and ceilings, keeping the temperature which is suitable, etc.)

A janitor might be used in this discussion.

6. Finally, we will examine our laboratory. How do we or how can we maintain it. How about sweeping? Do we clean the benches? Who repairs the tool panels? What happens when our machines do not operate properly? (The method of repair at your school should be brought out.)

7. What do we do that causes our equipment to last longer or in other words, maintain its value? (Discuss lubricating, adjusting, repair, protecting as basic ways.)

8. (Now the teacher should demonstrate proper maintenance of hand tools and machines. This should complete the lesson with the exception of a brief conclusion.)

C. Conclusion

In concluding this lesson let us answer a few questions:

1. What is maintenance at home, in a business, and at school?

2. Basically, is the maintenance of one different from another?

3. In what ways do we preserve the value of property each day?

V. Evaluation

Prepare a plan for maintaining our laboratory. This should include all equipment as it is used throughout the school year and necessary preparations for summer storage. Don't forget the interior walls, floors, tool panels, etc.

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

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If you need more room for comments, attach additional pages.

Instructor________________________ Date________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain________________

____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain________________

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6. Which activity did you use?________________

The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

LEVEL I - American Industry
UNIT III - Organizing an Enterprise
Lesson 19 - Producing Goods and Services Requires Work (2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Define and identify examples of work and energy. In addition he will be able to state the relationship between these two terms.

II. Scope

This lesson gives the student a concrete example of work and then broadens the concept of work to include various tasks associated with industry. On this base it develops the concept of energy as the ability or capacity to do work.

III. Resources

A. Instructional media

1. OT: Energy.

B. Literature

1. Student booklet, Organizing an Industry, pages 49-53.

2. American Industry Resource Material, Energy.

3. Energy (Part of Life Science Library) by Mitchell Wilson, Time, Inc., New York.

4. Any basic science book.

5. An up-to-date encyclopedia will give some basic information.

6. Publications by the "energy companies" such as the electrical, gas, and petroleum companies.

IV. Content Outline

A. Introduction (Use option 1 or 2.)

1. (Have your students spend about one-third of the class period doing some heavy work. Consider such things as cleaning the lab, rearranging the lab, storing materials, or moving benches. If you do not have any work in your laboratory, arrange to have them carry supplies for a janitor or move mats or apparatus for the coaches.)

   a. (If at all possible, have some of the students use a simple machine such as a lever or pulley and others use compound machines such as a two wheel cart. Have them do the task by hand first, then use the machines.)

   b. (Bring students back for discussion. See B.)

2. Several days ago I overheard one of you say that you really had been working. (Use student or student's names if possible.) What did you mean? (Bring out the activities they had engaged in such as lifting, pulling, stacking, pushing lawn mower, etc.)

B. Activity and content

1. What is work? (Use examples of what you did in the introduction to bring out the following definitions.)

   a. (Scientific definition of work is: The application of force through a distance. Examples of this type of work are lifting a box, riding a bicycle up-hill, driving a car up-hill, take-off of an airplane, pushing a window down, etc.)

   b. (Layman's definition of work is: Use of physical force or human abilities to complete a task. Examples of this type of work are studying, walking on level ground, designing an object, lifting, etc.)

2. Is there work involved in industry? (Use OT: Energy to bring out the assorted varieties of work shown. Relate these examples to the definition of work.)

OT: Energy.

3. (Application of the idea of work to the student enterprise.)

a. What work did we do in the student enterprise in Unit I?

Answer: (1) Processing materials. (Give examples.)

(2) Distributing materials and products.

(3) Arranging the laboratory.

(4) Managing the enterprise.

(5) (Others?)

b. Why did we do this work? (Design and produce a product to sell for a profit.)

4. (Transition to the concept that energy is required to do work.)

a. What did we have to do in order to get our work done in this lesson and in Unit I? (You will get a variety of answers. Manipulate your students' response so that you can first summarize work as being the result of their efforts. Then broaden this to say that energy rather than effort is a more appropriate term for industry where more than human effort is used to accomplish work.)

b. Energy is the capacity to do work. (Place this definition on the board.)

c. Let us see what forms of energy are used in industry. (Project OT: Energy with overlay.)

OT: Energy.

5. (Summary and application of the general concept that energy is the capacity to do work.)

a. What is energy?

Answer: Capacity to do work.

b. What is work?

Answer: (Use both definitions.)

c. What forms of energy do we have here in the lab? (List the responses on the board. Leave room to the right of each response so that you can identify some of the work that forms of energy can produce.)

d. What work can we do with these forms of energy? (Some examples: Electrical--run machines and light the room. Light--change room from dark to light, create an image on photopaper. Heat--heat the room, melt materials and cure materials. Mechanical--compressed air can be used to operate equipment and form materials, other energy of moving equipment can be used to process materials. Chemical--burning gas can be used to heat metal. Electrical--used to produce light, heat, and mechanical energy.)

e. What work does Wes have to do in Pronto Prefabs? What forms of energy did he need?

f. (Turn on one of your machines.) Is this machine doing any work? (With exception of overcoming the friction and inertia in the machine parts, it is not. Emphasize that industry is concerned with using the energy it has to do the tasks required to produce goods and services. This is your lead into the next lesson.)

g. (Be sure that your students do not equate energy and work. Energy is the capacity to do work. Work is use or the application of physical force or human ability to complete a task.)

V. Evaluation

1. How does industry use energy?

   A. To advertise
   B. To produce goods and services
   C. To increase costs
   D. To reduce competition

2. Which of the following examples does not involve work?

   A. John stacks boxes in the shipping department
   B. Repairs are flown to California
   C. Henry designs a new product
   D. Truck motors are left running while the trucks are loaded

3. What is energy?

   A. Capacity to do work
   B. Ability to avoid work
   C. Goods and services
   D. Problem to be solved

4-10: On the left are jobs found in industry. On the right are forms of energy. Select the best form of energy to use in doing the work. You may use the choices on the right more than once.

_____ 4. Pump gas	A. Mechanical
_____ 5. Heat a building	B. Electical
_____ 6. Cut a board	C. Chemical
_____ 7. Distribute products to salesmen	D. Light
_____ 8. Test the strength of a steel beam	
_____ 9. Send a message to an airplane	
_____ 10. Repair a flat tire	

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

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13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor__________________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made__________________________________

a. What type of energy turns the water wheel?

Answer: Mechanical.

b. Does the moving water wheel have kinetic or potential energy?

Answer: Kinetic since it is moving.

c. If this water wheel were connected to an electrical generator, dynamo, the dynamo would produce what type of energy?

Answer: Electrical.

d. (Turn on a machine or a portable power tool.) What has happened to the electrical energy in this tool?

Answer: It has become mechanical energy.

e. We see that the mechanical energy in moving water turns a shaft to generate electricity which is then used to make mechanical energy again. About 15 to 20 per cent of the electricity in this country is generated from water power. Why is this done? Why not make direct use of the water power?

Answer: You would have to have your plant very close to the source of the water power. This may not be possible. (Note the property concept here.)

(Electrical energy has other uses. Turn on or point to the lights, electric soldering gun, and point out its uses in communication.)

f. Thus, we see that electrical energy has some characteristics that mechanical does not have.

(1) It can be transferred from place to place, especially over long distances more readily.

(2) It is easier and more efficient to transform into light and heat.

(3) Do we use any other forms of energy?

Answer: Yes, chemical in our cars and in home heating and cooking. Chemical in our flashlight batteries. Light energy in photography and growing of plants.

(4) Since electrical energy can be transformed into heat, light, and mechanical energy, why don't we use only electrical energy?

Answer: It is not as economical for some jobs as other forms of energy. There is line loss which does not usually occur with coal, oil, or gas. Also, these fuels produce heat at less cost than electricity. (NOTE: This may change in the future. Also, electricity may not be available as a power source.)

3. We see that the cost of the energy used to complete a task is an important factor in selecting which form is used. (Remind them of the finance unit.) From our past discussion, can you name two other things to consider?

Answer: How the energy is to be transferred from one place to another and the availability of the energy.

4. Another important consideration in selecting the form of energy to use is the task to be completed.

a. What is the best source of energy to produce light? Why?

Answer: Electrical.

b. What are the best sources of energy for heating this building? Why?

Answer: Gas or coal because of the cost in comparison with electricity, handling, and cost in comparison with wood.

c. What type of energy is needed to saw this board?

Answer: Mechanical. (Bring out that human energy or electrical could be used and that the total amount of work involved would be an important factor in selecting one over the other.)

d. Several automotive companies are working on electric powered cars. Some of the first cars invented were electric. Why did we go to gasoline powered cars? Why are we now thinking of using electric cars? (Research has developed more efficient batteries and air pollution may require a reduction in the use of gasoline.)

5.. Where and what are the forms of energy in this room?

Answer: At each electrical outlet, each machine, each gas outlet, and each light.)

a. How can I get electrical energy to this spot?

Answer: Extension cord or battery.

b. How could I get mechanical energy to this spot?

Answer: Gear trains, belts, but in most cases it is easiest to create the mechanical energy at this spot. Hence, an electric drill motor would be more useful in this instance than a drill press 20 feet away.

c. (Note how the other forms of energy in your lab are transferred from one location to another. Bring out that the transfer mechanism is designed to fit the characteristics of the form of energy it transmits. Show the transfer mechanisms in some of your machines.)

6. (Control of energy.)

a. (Turn on or off a machine, lights, or flame. Also demonstrate that the control of flow of water onto the water wheel affects its speed.) Here you have seen _______ energy transformed into _______ energy. How did I start this transformation? (Used a switch of some type.)

b. (Project OT: Energy: Transformation Of--indicate that the key is the control over the energy in the automobile.)

OT: Energy: Transformation Of.

Can you name any other devices used to control energy? (Bring out the following major facets of control. Compare the similar devices used to control various forms of energy. For example, the safety valve, blow plug, and fuse are weak spots put in the transmission line to prevent overloading.)

(1) Duration: Amount of energy in the source transformed--a match will burn only as long as there is material left; switches, valves, timers, clutch, etc.

(2) Intensity and speed: Thermostat, rheostat, damper, fuse, accelerator, safety valves, blow plugs, transmission, gear box--show settings on your lathe or the drill press. A simple circuit with switch, power source, fuse, and light would help to demonstrate points 1 and 2.

(3) Variation: Governor, flywheel, reserve generating power, flow of energy into the transformation process (such as gas in a car).

c. Why is it important to be able to control the transformation of energy?

Answer: Cost--conserve energy; safety--avoid accidents, electrical fires from overloaded circuits, and uncontrolled fire in the transformation of chemical energy; quantity of work--lack of control may affect the quality of the product.

7. Up to this point we have discussed a number of ideas connected with the use of energy. We can now look at the relationships between these facts. To do this, I am going to use a graphic form of communication. (Draw the following diagram on the board.)

A. Available Forms of Energy	B. Transfer and Control Mechanisms Needed	C. Work Done

a. (Ask a student to specify a task. Write this in Box C. Then have him select the best source of energy--list it in Box A. Next he should give the transfer and control mechanisms used. Obtain enough of these to give a representative sampling of forms of energy and tasks found in the enterprises in your community and your laboratory.)

Example:

A.	B.	C.
1. Electricity.	1. Switch, Fuse, Saw, (Machine).	1. Cut a Board on Power Saw.
2. Gas	2. Valve, Gas Line, Gas Furnace.	2. Melt Solder.

C. Summary and application

1. What forms of energy might be used in Wes's Pre-fab plant and for what might they be used?

   Answer: a. Mechanical--within any machine.

   b. Electrical--to drive electric motors.

   c. Electrical--lights, heat, and communication.

   d. Heat--heating and air conditioning.

e. Light--illumination or electric eye.

f. Chemical--storage battery on trucks, dry cell batteries in flashlights, burning of gasoline in internal combustion engines.

2. Why did Wes decide to heat and cool his plant with gas?

   Answer: Cost.

3. Why would he use electricity from the local electric company for his lighting?

   Answer: Cheapest source of electricity.
   Electricity is most efficient source of light for the needs of his plant.
   Difficult to transport electricity over long distances.

4. What are some controls he probably would use in his plant?

   Answer: Thermostat, switches, valves, reostats, flywheels, fuses, safety valves, etc.

5. (If you have extra time or feel the need for further learning experiences in this area, use the automobile as an example and have your students identify the work done, the forms of energy used, and the transfer and control mechanism used.)

V. Evaluation

1-8: Match the statements of changing the form of energy to the device which makes the appropriate changes in the form of energy. For example:

__A__ Heat to mechanical — A. Steam engine

_____ 1. Chemical to electrical

_____ 2. Light to chemical

_____ 3. Electrical to light

_____ 4. Chemical to mechanical

_____ 5. Nuclear to heat

_____ 6. Mechanical to electrical

_____ 7. Light to electrical

_____ 8. Electrical to heat

A. Light bulb
B. Atomic reactor
C. Film in camera
D. Internal combustion engine
E. Flashlight battery
F. Dynamo or generator
G. Flowing water
H. Solar battery
I. Electric stove
J. Bicycle

9. Which of the following is not a control for energy?

A. Switch
B. Valve
C. Fuse
D. Motor

10. Why is it important to control energy?

A. To obtain the maximum amount of work
B. To increase competition
C. To avoid excessive waste
D. To meet government regulation

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor________________________ Date________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____

6. Which activity did you use?________________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ______________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ______________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ______________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ______________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______________________

____

Lesson 21 - Sources of Energy (1 period)

I. Objectives: At the conclusion of this lesson the student should be able to:

Identify the sources of energy and classify them as exhaustible or continuous. He will also be able to link these sources of energy with the forms of energy identified in the previous lesson on energy.

II. Scope

Up to this point in the energy unit, the student has been introduced to the concept of energy, its forms, and the work it does in industry. This lesson links the forms of energy to their sources in nature.

III. Resources

A. Instructional media

1. Select a film from the first level film catalog to show sources of energy.

2. Bulletin board--add sources of energy to one constructed for lesson.

B. Literature

1. Energy (Part of Life Science Library) by Mitchell Wilson, Time, Inc., New York.

2. American Industry Resource Material, Energy.

#. The Story of Power, General Motors, 1956, Detroit, Michigan.

IV. Content Outline

A. Introduction

1. In the last lesson we learned about the controlled change of energy from one form to another in order to do work. We saw electricity turned into mechanical energy in one of the machines in our lab and we discussed other ways energy is transformed to produce work in industry. Can you give some examples?

2. Today we will look at various sources of energy. As we do this, I want you to note how many of these sources are available and used in this community. Also, I want you to determine which sources are exhaustible, in other words, used up as they are transformed.

B. Activity and content

1. (Use one of the following options, a or b.)

a. (Project a film on the sources of energy. See your film guide for a listing of possible films. Be sure to preview the film and introduce it to your class.)

b. (Review literature such as Energy in the Life series and basic science texts. Use the illustrations in these sources as guides to the selection of examples of sources of energy. Be sure to include exhaustible and inexhaustible sources in your example. Post these examples on your bulletin board and/or project them with an opaque projector. Discuss these sources and bring out the exhaustible-inexhaustible attribute.)

C. Summary

(Review sources, which of these contribute to the forms of energy available in the lab, and how these forms were transmitted to the lab. Also, discuss which forms are exhaustible and the implications of this for industry.)

D. Activities

(Select one of the options if you have time to complete an activity in this unit.)

1. Activity #1

(Can You Make Energy Work? See attached student activity sheets. This can be assigned as a class activity or homework. Time involved can be reduced by not requiring your students to build their machine.)

Activity #1

2. Activity #2

Activity #2

. (From the following choices, have each student make a diagram showing the progress of the forms of energy from the source of the energy to the application or use of that energy. Wherever possible, the student should include any controls. If possible, he should give the reason(s) for each control and transformation.)

Post several of these on the bulletin board. Try to get as much variety as possible.

a. Automobile--from petroleum to the wheels.

b. Electricity--from coal to a fried egg.

c. Refrigeration--from natural gas well to refrigerator.

d. Automobile--from petroleum to headlights.

e. Transistor radio--from chemical to sound.

f. Ventilating fan--from water power to the moving air.

g. Campfire--from the sun's energy to the heat and light of the wood burning in a campfire.

h. Newspaper--from nuclear material to a printed newspaper.

i. Any machine in the lab--from original source of energy to the work produced.

SOME REFERENCES FOR USE WITH THE FOLLOWING STUDENT ACTIVITY[1]

1. Allis-Chalmers Power, Allis-Chalmers Manufacturing Company, 1963, Milwaukee, Wisconsin.

2. How the Wheels Revolve, General Motors, 1952, Detroit, Michigan.

3. Power and Progress, Edison Electric Institute, 1962, New York.

4. Power Goes to Work, General Motors, 1945, Detroit, Michigan. (Contact the Public Relations Staff, Detroit, Michigan 48202.)

5. The Story of Power, General Motors, 1956, Detroit, Michigan. (Contact the Public Relations Staff.)

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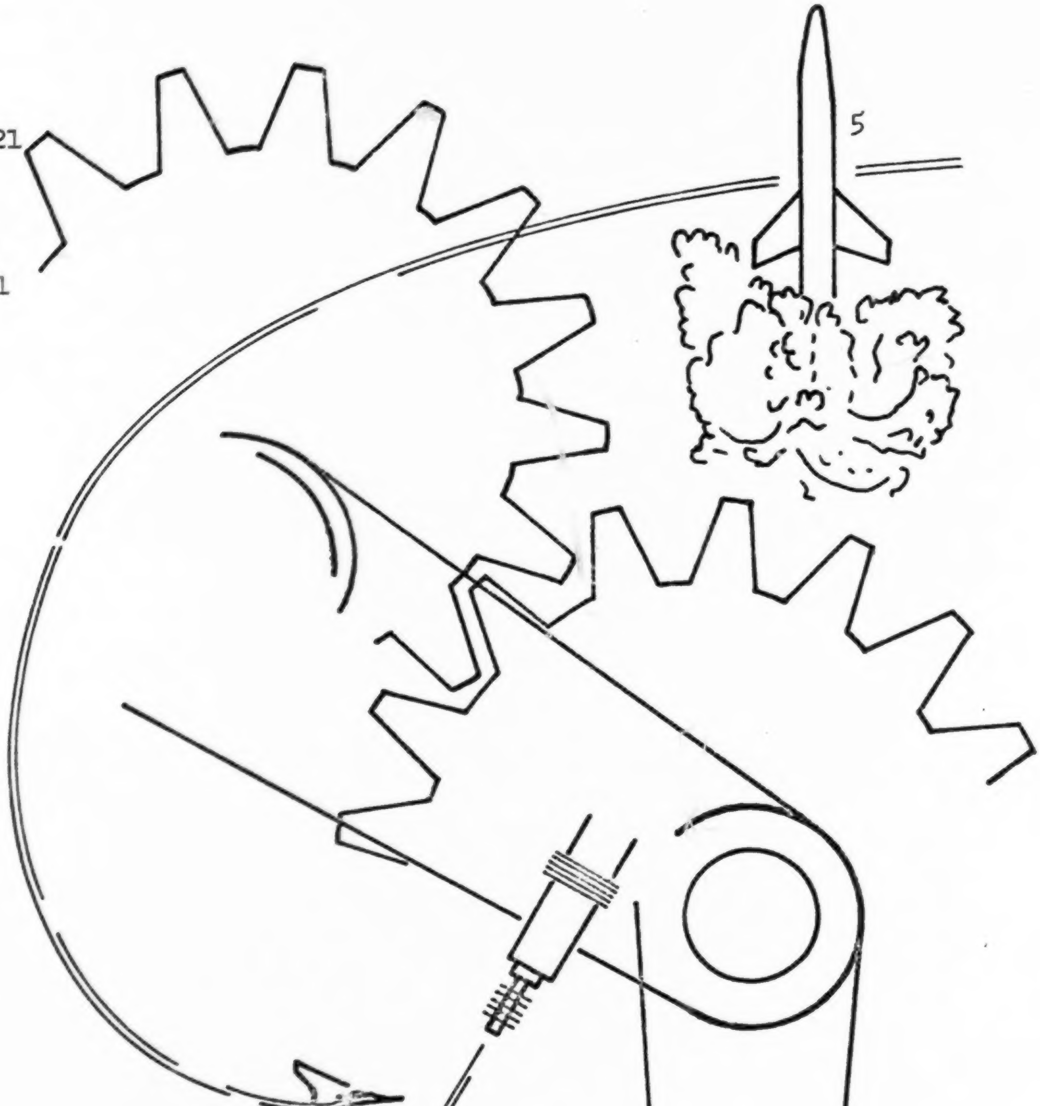
[1] In addition to these, your school library or other faculty members should have books and other instructional materials on energy and its applications.

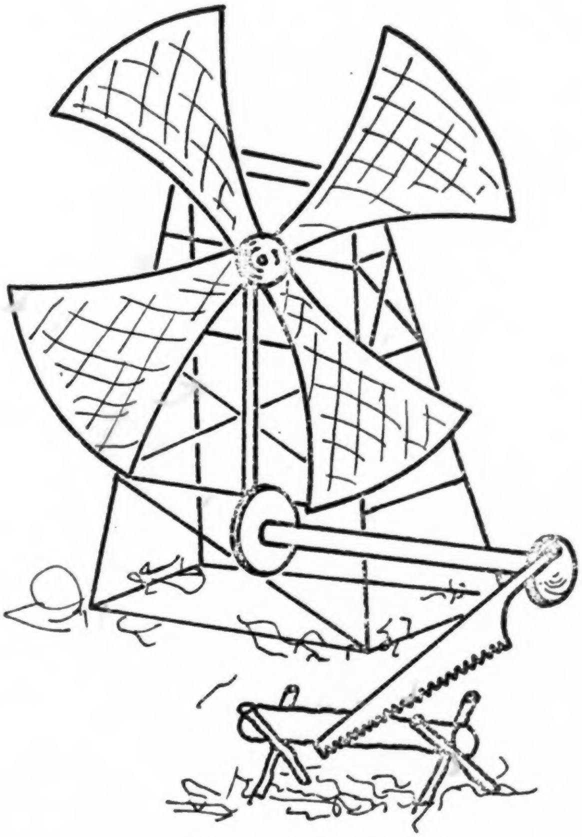
I - III - 21

Unit III
Lesson 21
Activity #1



MAN makes machines work. He takes a potential source of energy--water, oil, coal, etc.--and makes it do work for him. Each machine that man uses has a few things in common. Each has parts that change the size of the force or the direction of the force that man can apply to a task. Machines also direct and guide these forces to make man's work easier, more productive, and of higher quality.

CAN YOU MAKE ENERGY WORK?



The illustration at the right shows energy at work in a machine. Wind turns blades which are fastened to a shaft. The shaft rotates. A pulley on the shaft is connected to a second pulley on a second shaft by a belt. The second shaft turns. An off-center cam on the end of the second shaft pulls and pushes a saw blade which cuts a log.

You are going to make energy work. You will need to decide on the work that you want to do, such as cutting a log; the source of energy to be used and how this source can be transformed and controlled to do this work.

Each of the following questions will need consideration in planning your activity.

1. What could I have my machine do?

   A. Saw a log
   B.
   C.
   D.
   E.
   F.

2. What sources of energy might I use?

   A. Wind
   B.
   C.
   D.
   E.
   F.

3. What devices can I use to harness and control this energy?

   A. Windmill
   B.
   C.
   D.
   E.
   F.

4. What can I use to convey energy from one place in the machine to another part of the machine?

   A. Pulley
   B.
   C.
   D.
   E.
   F.

5. What can I use for construction materials?

   A.
   B.
   C.
   D.
   E.
   F.
   G.
   H.
   I.
   J.

6. Make a sketch of the machine you plan to make.

Instructor's Initial________

PRODUCTION TIME

It is time to produce. When you have received your instructor's initial on your sketch, you may build your machine.

Grade________

V. Evaluation

1. Which of the following is not a chemical source of energy?

   A. Wood
   B. Gas
   C. Water
   D. Coal

2. Which of the following is a mechanical source of energy?

   A. Sun
   B. River
   C. Tree
   D. Grass

3. What characteristics of an energy source would you consider when selecting the heating equipment for an office building?

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor________________________________ Date____________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain________________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain________________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain________________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain________________________

6. Which activity did you use?________________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain________________________

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain__________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain________________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references________________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made____________________

____

LEVEL II
UNIT FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this unit, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor____________________ Date____________

Unit Number________ Date Started________ Date Completed________

1. The approximate time spent in laboratory was_______%.

2. Generally, this unit was found to be (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

3. The general unit objectives were (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ impossible to meet, (e) ☐ too broad, (f) ☐ too restrictive. If (c), (d), or (e) explain____________________

4. Generally, the activities were found (a) ☐ adequate, (b) ☐ not suited to the lesson(s), (c) ☐ not enough of them. If (b) or (c) explain____________________

5. The student booklet (a) ☐ provided enough background reading for the students, (b) ☐ should have contained more information, (c) ☐ did not fit together with the lessons. If (b) or (c) explain____________________

6. The instructional media for this unit was generally (a) ☐ effective, (b) ☐ ineffective.

(Be sure to fill out the items on the reverse side.)

7. Did you make any changes in the lesson sequence or contents in this unit?

   (a) ☐ yes, (b) ☐ no. If you checked (a), please describe the changes.

   ____

   ____

8. Give a general summary of your feelings about this unit. Include the strong and weak points you found.

   ____

   ____

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Benton

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LEVEL ONE
AMERICAN INDUSTRY
INSTRUCTORS GUIDE
PART 2

AMERICAN INDUSTRY PROJECT
STOUT STATE UNIVERSITY
MENOMONIE , WISCONSIN
USOE CONTRACT NO. OE-5-85-050

VT015420

Benton
Kind

LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Introduction

Stout State University
Summer, 1967

INTRODUCTION

I. Unit IV is a continuation of the sequential study of each concept area which started in Unit III. The practice of studying individual concepts and their interrelationships will be continued in Unit V also.

The following is the group of themes around which the lessons were written:

A. Relationships: Various individuals and groups make contact in industry. The contacts may be: union to company, company to community, or many others. Interface of these groups or individuals should be to promote harmonious, effective working relationships in order to meet established goals.

B. Procurement: Profit is directly affected by procurement policies. In procuring land, buildings, materials, or services it is essential that a company receives value commensurate to the money spent. In some cases it is economical to make or buy the goods or services needed, however, in others it is more economical to lease. By applying value analysis in making procurement decisions we are more likely to make the correct decision.

C. Materials: Industry uses a variety of materials. Many of the materials have similar process and service characteristics. By understanding the characteristics of materials we can more intelligently select those appropriate to fulfill our needs.

D. Processes: Processing involves a systematic series of actions which is involved in the transformation of materials in the production of goods and services. Production of goods and services requires a process interaction of tools, materials, and skills. How are processes developed? How do we learn skills?

E. Production: The act of making a product or providing a service is vital to every enterprise. If time or material is wasted costs increase and may limit the ability to compete. Therefore, many plans and decisions are made before the actual producing takes place. The basic production considerations are planning, types, systems, fabrication, and control.

II. Activities

A. Activities in these lessons have been developed in each of the concept areas of relationships, procurement, materials, processes, and production. These classroom and laboratory activities have been designed to bring about a deeper understanding of specific concept areas and the relationship to other concept areas of American industry.

B. As in other units, the student enterprise is the focal point and should be used in bringing about an understanding of American industry.

C. NOTE: For those teaching one semester courses, the student production activity may have to be delayed until Unit VII. However, all plans for production should be completed during this unit.

III. Evaluation

Evaluation items have been provided for the lessons. However, other evaluation items may be added when needed. (Send copies of all added items with your feedback information.)

IV. Instructional Media

The use of instructional media has been suggested for the following lessons. In some cases the media is optional, therefore, each lesson should be reviewed to determine whether a film or other media will be used.

A. Films

Lesson	Concept Area
1	Relationships
2	Relationships
3	Relationships
10	Materials
16	Production

Lesson	Concept Area
19	Production
20	Production
21	Production
22	Production
23	Production
24	Production
25	Production

B. Other media

Lesson	Title
2	OT: Relationships OT: Human Resources
3	OT: Relationships
12	SS: Processes and Manipulative Skills
13	SS: Processes and Manipulative Skills
14	OT: Components of Manipulative Skill Learning
15	SS: Processes and Manipulative Skills
18	SS: An Introduction to Production
19	OT: Production Types
22	OT: Production Planning OT: Production Fabrication OT: Production Control

A

LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Unit Layout

Stout State University
Summer, 1967

Lesson No.	Periods Required	Concept Area	Lesson Title
*1	1	Relationships	Working Together: Relationships
2	2	Relationships	Associations and Incentives in Relationships
3	2	Relationships	Control of Relationships
*4	2	Procurement	Obtaining Industry's Needs: Procurement
*5	1	Procurement	Procurement Affects Profit
6	2	Procurement	Value Analysis Applied to Procurement
7	1	Procurement	Supplier Competition
*8	1	Materials	Industry Uses a Variety of Materials
*9	2	Materials	Materials Have Many Characteristics
10	2	Materials	Materials Are Selected to Fulfill a Need
11	1	Materials	Materials Have to be Processed
*12	1	Processes	A Systematic Series of Actions in Transforming Materials
*13	2	Processes	How Is a Manipulative Skill Learned?
*14	2	Processes	A Skill Is A Skill Is A Skill
15	1	Processes	What Are the Actions Involved in Processes?
16	2	Processes	The Interaction of Tools, Skills, and Materials
17		Processes	How Can You Learn a Skill by Yourself?

5

Lesson No.	Periods Required	Concept Area	Lesson Title
*18	1	Production	Introduction to Production
*19	1	Production	Production Types
*20	2	Production	Producing in a Systematic Way
*21	2	Production	Production Planning
*22	1	Production	Product Fabrication and Control
*23	1	Production	A View of Production in Action
24	2	Production	Selecting a Product and Planning for Production
25	7	Production	Efficient Production
26	1	Production	Production Control

*Suggested lessons for an eighteen week course.

a. A taconite plant is being constructed near a source of low grade iron ore. The process used in producing the taconite requires a great deal of fresh water which is eventually dumped back to its source. Unfortunately, the used water contains a great deal of silt and is at a much higher temperature than it originally was. Consideration is being given to drawing the water from and eventually dumping the water back into a river which is considered the best in the state for game fishing. Inasmuch as the use of the river will have an effect on fishing and the purity of the water, the company building the plant must be concerned about its relationships with ______________________.

(Cite other examples where public relationships are involved.)

Public, Government.

Along with a company being concerned about its relationships with the people and government it has an internal or company matter it must keep in mind--profit. If the company can dump the warm, silt laden water back into the river without further processing, money is saved. However, if a process of removing the silt and reducing the temperature is required, the profit picture for that company will be lowered. In essence the relationship might well become a question of: Will the public or the Government react with enough force and effect to cause the company to spend additional money to limit its effect upon the river?

This situation frequently exists in industry today. It may involve a company and the government, management and labor, or the company and its customers. These clashes of interests must be resolved almost daily.

b. A paint company has been researching the use of a new paint solvent. The new solvent is cheaper and has some other minor advantages. However, in manufacturing the paint with the new solvent, a highly irritating odor is given off, causing people to cough and become hoarse. At least, twenty people are employed in this part of the plant. Before continuing with the production of paint with the new solvent, the company should be concerned about its relations with ______________________.

Discuss ways in which the company, labor, and government might be involved in this situation. What reaction could we expect from each?
Employees, Labor.

c. A local company which manufactures power mowers is concerned over the number of accidents which have occurred to people using mowers of the type they manufacture. The company's safety engineer has felt that all companies which produce this type mower should meet for the purpose of establishing minimum safety standards for the design of the mower. In so doing, the company is demonstrating its relationship with ______________________.

Industry and consumers.

d. An insurance company has presented a revised insurance plan to the construction firm which is building a new dam. The insurance company had become aware of a loop-hole in the construction company's insurance program which did not cover some of the special work being done on the dam. An accident in this particular field of work could have brought lawsuits which would bankrupt the construction company. The insurance company was displaying its relationship with ____________________.

Enterprise

e. Wes's plan to consult with Carpenters Negotiating Committee to negotiate Pronto Pre-fabs' new wage and development plan is an indication of his relationships with ________________.

Organized Labor

(Teacher: This is an ideal place to bring out a relationship experienced in many companies today, that is the relationship of managers to labor (either organized or unorganized labor).

The primary impetus of organized labor is for better economic and working conditions. Refer back to b. and ask about the reaction of organized labor to the paint solvent problem.

It should also be noted that labor does not always choose to organize and be represented by a union. Discuss some logical reasons for not organizing.)

f. Dave has devised a new scheme for clamping the parts of a metal cabinet to hold them in place for welding. He is sure that his new method will save production time and improve the accuracy of the weld. This will lead to substantial savings for the company in producing this part. Dave plans to explain his method to the plant superintendent before leaving the plant this afternoon. In this way Dave is demonstrating his relationship to

____________________.

Management (Bring out the concept of management.)

g. A new high speed radial saw has been installed in the millwork department, but has not been put into operation. It will be necessary for the department foreman to check it for compliance with the safety requirements of the

LEVEL I - American Industry
UNIT IV - Operating an Enterprise
Lesson 1 - Working Together: Relationships (1 period)

Stout State University
Winter, 1969

I. Objectives: At the conclusion of this lesson the student should be able to:

State in his own words that relationships are associations between individuals, organizations, and industry that are effected to promote the interests of the people and organizations involved and that the participants in these associations are the public, employees, industry, enterprises, labor, management, and government. He will also be able to cite examples of these relationships as they apply to industry.

II. Scope

This lesson introduces the concept of relationships and the attributes that support this concept.

III. Resources

A. Instructional media

1. First level film catalog.

2. Bulletin board--have your students bring in clippings on relationships. Post these to bring out the attributes of the relationships concept.

B. Literature

1. Student booklet, Operating an Industry, pages 3-13.

2. Business Management, John A. Shubin, 1964, Barnes and Noble, Inc. (Educational Paperbacks), New York, pages 254-314.

3. Industrial Organization and Management, Bethal, Atwater, Smith, Stackman, 1962, McGraw-Hill, New York.

4. Labor Economics, Heneman and Yoder, 1965, South-Western Publishing Company, Cincinnati, Ohio.

5. Personnel Administration, Pigors and Myers, 1965, McGraw-Hill, New York.

6. Industrial Relations System, J. Dunlop, Holt, Rinehart, and Winston.

7. Newspaper or current periodical articles on this subject.

IV. Content Outline

A. Introduction

1. Wouldn't it be wonderful to be a hermit? Then it wouldn't be necessary to get along with anyone! There'd be no one to tell you what to do--no one to mess up the area in which you live--no one to make a lot of unnecessary noise--no one to care about what you do--no one with whom to associate in any way.

Because we are not hermits, but a part of society, we have contact with many people about us. Some contacts involve the people with whom we work, others are with our neighbors and friends, and we have frequent contacts with businessmen in our local stores. These are called relationships and affect our lives daily.

In industry, relationships exist between many individuals or organizations. These relationships are planned or carried out to bring about whatever is best for the individuals and groups which are involved.

If we were to formulate a definition, we would say that "relationships" is the associations between individuals, organizations, and industry that are effected to promote the interests of the people and organizations involved. (Write this on your blackboard.)

B. Activity and content

1. Activity #1

With whom are we involved in relationships?

Activity #1

Teacher: A number of situations are given. The student should study the situation and suggest the second party involved in the relationship.)

4/5

Industrial Commission. The company in this way shows its relationship with ________________.

Government (What other relationships might be related here?)

C. Conclusion

1. We have defined relationships as associations between individuals, organizations, and industry that are effected to promote the interests of the people and organizations involved. (If you have a film, show it now.)

Film

2. A review of the situations in Activity #1 should show us that participants in relationships in industry are public, employees, industry, enterprise, labor, management, and government.

3. Can you identify the various attributes of relationships (underlined in the definitions) as they occur in the situations in Activity #1? (If you will not be able to cover the remaining relationship lessons, spend some time here on the reasons these associations are made. Use the examples in Activity #1 to bring this out.)

4. Can you think of anyone or an organization with whom our American Industry class should develop a good and beneficial relationship? We could set this as a goal! (Be sure to consider the student enterprise.)

5. What relationships do local enterprises enter into? (Check to see that your students can apply their knowledge of relationships to this problem. If they cannot, you will have to review the content of this lesson.)

6. Why are good relationships important to a successful enterprise?

V Evaluation

(Check the correct answers.)

A. Relationships involves:

_____ 1. Associations between individuals.
_____ 2. Promotion of interests for profit only.
_____ 3. Associations which are carried out to promote the interests of people and organizations.
_____ 4. Association between organizations and industry.

B. An example of an enterprise's relationships with the public is:

_____ 1. Paying taxes.
_____ 2. Arranging for school children to tour the plant.
_____ 3. Arranging to eliminate soot from the company smokestack.
_____ 4. Beautifying the surrounding grounds.

C. (Explain the following.) Each day you associate with many people through school, home or various business people. Identify two of these associations and tell why favorable relationships with these people or businesses are necessary.

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor________________________________ Date______________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)_______

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain______________________
____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____
____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________________
____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____
____

6. Which activity did you use?_____________________________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

____

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LEVEL I - American Industry
UNIT IV - Operating an Enterprise
Lesson 2 - Associations and Incentives in Relationships
(2 periods)

Stout State University
Winter, 1969

I. Objectives: At the conclusion of this lesson the student should be able to:

State in his own words that many interactions exist between individuals and groups of people within industry. Also that there are interactions between industry and the public and that various incentives encourage better relationships. He will be able to cite examples of the above as related to American Industry.

II. Scope

This lesson provides information leading to an understanding of the associations that exist in relationships and the various incentives that are used to motivate good relationships. Activity will be encouraged in order to establish a good program of relationships within the school situation.

III. Resources

A. Instructional media

1. First level film catalog.

2. OT: Relationships.

3. OT: Human Resources.

4. Continue the development of your bulletin board.

B. Literature

1. Student booklet, Operating an Industry, pages--bottom of 5 to the top of 11.

2. Business Management, John A. Shubin, 1964, Barnes and Noble, Inc. (Educational Paperbacks), New York, pages 276-314.

3. Handbook of Personnel Management and Labor Relations, Yoder, Heneman, Turnbull, and Stone, 1958, McGraw-Hill, New York.

4. Newspaper or current periodical articles on this subject.

IV. Content Outline

A. Introduction

1. People and organizations work together to accomplish common goals. The associations involved in these common efforts may be of several types or kinds.

2. What kinds of associations might be depicted by the following?

   a. A group of people working as a team to operate a grocery store or service station ________________.

      (The main point is that each is the member of a team and works toward team goals.)

      Cooperative

   b. Other grocery stores (or service stations) attempt to attract customers so their businesses can sell products. The relationship is ____________________.
      (Identify some local competitive businesses).

      Competitive

   c. A company holds its annual picnic, all employees are invited. What type relationship would this exhibit? ____________________.

      Social

   d. As an American Industry class or American Industry enterprise, what relationships are we concerned with?

3. Any associations involved in relationships will typically fall into one of the four groups which we have just illustrated. Therefore we may conclude that associations are of four kinds:

   OT: Relationships

   a. Cooperative

   b. Competitive.

   c. Social

   d. Administrative

   (Indicate on overhead.)

16

4. Have you been able to think of anyone or any group with whom our class could establish a relationship based on a cooperative, competitive, social, or administrative association? By doing so, our class could gain some recognition and some benefits for the American Industry program. (Discuss what these might be.)

B. Activity and content

1. Activity #1

Develop an effective public relations program within the school.

Activity #1

(Teacher: At some point in the course, it will be desirable to promote a class product. It would be advantageous at this time to establish a plan for this promotion and to use it in conjunction with a public relations activity for the class. As a new subject in the curriculum, American Industry undoubtedly can use some good publicity for the sake of building enrollments and prestige.)

Students:

a. Within the realm of our school, with whom would our class develop some effective relationships? Refer to participants in Lesson 1. (Public--student body, students--faculty, management--school administration, enterprise--any specific school organization as publications, athletics, and music.)

b. Having made our choice of participants in our program of relationships, what will be our association with the participant? Refer to the introduction to this lesson. (Association with the student body or school organizations could be cooperative, or administrative with the school administration.)

c. What promotional means can we use in our planned relationship--and how will responsibility be established? These questions are important and must be answered if our plans are to be successful. Let's take time out from our activity in order to find out something about incentives. We will conclude our activity in Lesson 3 after we have learned something about controls.

(Does industry apply the same concepts? If so, in what ways?)

2. Incentives.

a. Although we know the participants and the type of association for a relationship, there must be a motive to encourage that relationship. We will call this motive an "incentive."

b. Incentives: The motives that encourage good industrial relationships. (Write this on the blackboard.)

c. For what reasons would you accept a position as an assistant sales clerk in a large department store of a national chain rather than a common laborer in a local junk yard? (Better pay--compensation, a better chance to advance--opportunity, more permanent job--security, more prestige--status.)

d. Why did you participate in the student enterprise in Unit I? (Grades--opportunity and compensation.)

e. Were there any other incentives involved in this enterprise?

f. For what reason would you join with a group of teenagers in cleaning up the school grounds? (Good will.)

g. For what reason would a businessman, company, labor union, or employee donate land (property) for a park, a building for a museum, or a fund for scholarships? (Charity, desire to help mankind--philanthropy.)

h. From these examples of typical incentives, it becomes evident that incentives can be of the following types: (use definitions and synonyms at student level.)

OT: Relationships

(1) Compensation.

(2) Philanthropy.

(3) Good will.

(4) Opportunity.

(5) Security.

(6) Status.

(Indicate on OT: Relationships with overlay #1.)

i. (Review want ads to determine the incentives used by industry.)

OT: Human Resources

C. Conclusion

1. Activity #2

Incentives in the news.

Activity #2

(Teacher: The purpose of this activity is to have the students find evidence of incentives as in labor relations from news items published in magazines or newspapers. Some incentives might be given in advertisements of employment opportunities.

Philanthropic incentives may be quite common in newspapers at the time when scholarships are announced or just prior to income tax time. Bonuses (Christmas, annual, etc.) may provide some noteworthy news articles.

Be sure the students recognize the incentives, the association involved, and the people or organizations who are the participants.)

Students:

You are to search through newspapers, magazines, or other news media for examples of incentives used in promoting company relationships. These incentives will be evident in news items dealing with labor relations. You also may find philanthropic incentives being written up in some of your sources. You may find that some advertisements of employment opportunities will list a few incentives.

(Note: These incentives are simply those deeds which encourage or promote rapport between a company and its associates.)

When you have found an article which illustrates an incentive, fasten it to a sheet of notebook paper. On the notebook paper, identify the incentive. Also indicate the participant and the kind of association involved in the relationship.

Be prepared to turn your paper in to the teacher for possible use in a display.

D. Summary and application

1. What associations do we have in class and in our student enterprise? (List in a column at the left of your blackboard.)

2. What are the incentives for entering into and maintaining those associations?

3. What associations and incentives do we find in Pronto Pre-fabs?*

4. What associations and incentives do we find in local enterprises?*

5. How are all the above basically the same?

*Those two questions evaluate the conception your students have of relationships, associations, and incentives. If they cannot answer these, you will have to review the content of this lesson.

0

V. Evaluation

A. An example(s) of a cooperative association is:

_____ 1. A foreman discussing a problem with a welder.
_____ 2. A company making sewing machines.
_____ 3. Two tennis players engaged in a match.
_____ 4. A store selling the same product as a door-to-door salesman.

B. An example of an administrative association is:

_____ 1. A husband and wife.
_____ 2. A company official relaying a policy to a supervisor.
_____ 3. A worker going on strike.
_____ 4. A personnel director hiring a stenographer.

C. A practical definition of "incentives" is:

_____ 1. A means of earning a lot of money.
_____ 2. The availability of a good job.
_____ 3. The motives that encourage relationships.
_____ 4. A desire to create a good transaction.

D. Some examples of incentives are:

_____ 1. A position of prestige.
_____ 2. Strict supervision.
_____ 3. Higher pay.
_____ 4. A chance to advance.
_____ 5. A need for more education.

E. Give some incentives a labor union might provide for prospective members to join.

1. ____
2. ____
3. ____

F. How are harmonious relations between organized labor and management related to company goals?

____

____

____

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor______________________ Date______________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain______________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain______________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain______________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain______________________

6. Which activity did you use?______________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain______________________

(Be sure to fill out the items on the reverse side.)

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8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain__________

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9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain________________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references________________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor________________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made________________________

____

LEVEL I - American Industry
UNIT IV - Operating an Enterprise
Lesson 3 - Control of Relationships (2 periods)

Stout State University
Winter, 1969

I. Objectives: At the conclusion of this lesson the student should be able to:

State in his own words that control is exercised in many places and at various times in industry and that different situations require appropriate controls. He will also be able to cite examples of these controls as applied to industry.

II. Scope

This lesson introduces control of relationships. It also concludes with an activity in which the students plan a public relations program within the school and apply the principles involved in association, incentives, and control of relationships.

III. Resources

A. Instructional media

1. First level film catalog.

2. OT: Relationships.

B. Literature

1. Student booklet, Operating an Industry, pages 11-13.

IV. Content Outline

A. Introduction

1. We have identified the participants in relationships, the association between participants, and the incentives that encourage good relationships. However, participants, associations, and incentives do not occur and continue to operate without some source of direction and responsibility which we will call "control."

2. (Control: The directing, guiding, or restraining of powers to assure that an industrial relationship conforms to certain prescribed objectives. Teacher--Use your own words to explain this.)

B. Activity and content

1. Directing and guiding can be done in a number of ways.

   (Indicate on OT: Relationships with overlay #2.)

OT: Relationships

   a. There are those people who feel that each individual should have a voice in policy making. They feel that a group decision is much more desirable than one individual's opionion. In a business where each individual has a vote in policy making decision, control would be of what type?

      ____

It should be noted that democratic control is seldom found in industry since it is not feasible.

Democratic

      Another example of democratic control is found in the local union. The local union reaches its decisions through democratic methods required by law.

      (1) What are the advantages of the democratic form of control?

      (2) What are the disadvantages?

   b. There are some people who feel that control should be like that of the captain of a ship where all authority rests in the hands of one person. This one person makes all the decisions and assumes all responsibility. Can you think of examples of this where all decision were made by one person or group which has supreme power over others?

      ____

Autocratic

      (1) What are the advantages of this form of control?

      (2) What are the disadvantages?

   c. There are other people who allow control to be non-existant. They believe that things should be permitted to take any direction or to operate without control. Sometimes this is known as a "hands off" policy, but is more commonly called ______________.

Laissez-faire

      (1) What are the advantages of this form of control?

This form of control is also practically non-existent since pure laissez-faire provides no direction.

5

(2) What are the disadvantages?

d. Democratic, autocratic, and laissez-faire are the three types of control that exist in relationships. It is through these three types of control that associations, between participants are developed and guided to meet the objectives of the group. Frequently two or more of these forms of control may be used by the same enterprise. (Cite examples and make sure the class really understands by questioning them.)

2. Activity #1

Activity #1

Continuation of Activity #1 in Lesson 2.

In Activity #1 of Lesson 2, we attempted to set up a public relations program within our school. We considered the participants and the associations that would exist between participants, but decided we had better find out something about incentives and control before continuing.

a. What are some incentives which could be effective in promoting our public relations in our school?

(1) Make and sell (for little profit) some school identification patches.

(2) Make and sell pennants or megaphones in school colors for homecoming or color day.

(3) Make and give away some school identification stickers.

(4) Present the principal with the first of our student products. Be sure to have a photographer there at the time.

(5) Make and distribute small favors to the faculty.

(6) Have an "open lab" for visitors during a production time.

(7) Make and sell folders with the school emblem.

(8) Make and give away some book covers with the school emblem.

(9) Make and wear American Industry identification badges.

(10) Make a closed-loop type 8mm movie film of activity in the American Industry lab. This film could be used at PTA, open house, display booth, or any other special function.

(11) Make up and publish a "Code of Service" for the American Industry class.

(12) Arrange for pictures in the school paper and local paper.

(13) Sell popcorn, candy, pop, ice-cream, etc. for school events. Be sure to organize as an enterprise.

(14) Many other opportunities will exist in local situations and will be limited only by the lack of ingenuity on the part of the class members. All of these relationships activities should be carried on without a profit motive. Profit can be made when selling a class product.

b. Who is going to run the whole show? Will an effective program of relationships run itself or should there be some organized control? What form/s of control?

(1) Should all the decisions be made by the teacher? Autocratic

(2) Should decisions be made by the class on a group basis? Democratic

(3) Should we let things go, letting them happen as they will, taking no set stand on policy? Laissez-faire

c. (Decide which form of control will give your class the most effective program and provide your class with the best possible school relationships. Each student, the whole class, the teacher, the American Industry course can all gain from it. Make it an activity that continues on throughout the school year even though these lessons have been concluded.)

d. What form of control did Pronto Pre-fabs use? Explain the control used. Why did Pronto Pre-fabs use this form of control?

e. What forms of control are used by local businesses?

C. Conclusion

1. We have taken a close look at relationships and its various sub-elements including controls. Besides our application of the concept through our school relations activity, we should be able to demonstrate our understanding of the knowledges involved. Activity #2 provides us with a simple review and conclusion to our study of relationships.

2. Activity #2

Activity #2

Review of relationships.

(Teacher: The students should be able to complete the Information and Assignment Sheet for Relationships in class or as homework. If time permits, many of the questions are appropriate for class discussion. The third suggested use given on the title page should be avoided except in extreme cases.

Unit IV
Lesson 3
Activity #2

Information and Assignment Sheet

for

RELATIONSHIPS

* *

Unit IV: Operating An Enterprise

Lessons 1, 2, and 3

Pages 1-13 in the Student Booklet

Operating An Industry

May be used as:

1. Review or summary of unit.
2. Condensed version of unit when time doesn't allow full use of the lessons.
3. Study guide for pages 1-13 in Operating An Industry.

VOCABULARY

Write out the definitions for the following words before beginning to read the materials in this lesson.

Relationship:

Association:

Effected:

Promote:

Collective bargaining:

Relevant:

Participants:

Incentives:

Cooperative:

Competitive:

Social:

Administrative:

Compensation:

Philanthropy:

Status:

Democratic:

Autocratic:

Laissez-faire:

Interact:

RELATIONSHIPS

(Lesson 1)

Industrial relationships may be defined as the associations between individuals, organizations, and industry that are effected to promote the interests of the people and organizations involved. Many examples of industrial relationships can be found in the pre-fabricated home industry.

It is important to recognize that all enterprises are constantly looking for ways of improving relationships in order to create harmony with everyone who is in any way associated with the enterprise.

Let us analyze the area of industrial relationships a section at a time. Examples will be given relevant to the pre-fabricated home industry, but remember that the participants, associations, incentives, and control being discussed are common to all industry.

Read student booklet, pages 1-13.

Questions:

1. Write the definition of industrial relationships in your own words as you understand it.
2. List the four elements which are part of industrial relationships.
3. Give one reason why any enterprise would be anxious to improve its relationships with any particular participant.

(Lesson 2)

A. Participants

The participants in an industrial relationship include the people and/or organizations that interact within the environment of industry. The term participants includes the public, employee, industry, enterprise, labor, management, and government.

Industrial relationships occur when any two or more of these groups begin to interact with one another. For example, management may have to deal with the Carpenters' Local of the AFL-CIO and thus we have the elements of management and labor involved. The enterprise may develop a new marketing scheme and thus be involved in an industrial relationship with the public.

Examples of industrial relationships involving any of the participants listed earlier should not be difficult to arrive at.

Read student booklet, pages 3-5.

Questions:

4. Give two different examples of interaction between participants in industrial relationships.

5. Look through magazines and newspapers, or talk to your dad or other friends to find an actual example of industrial relationships taking place among participants. This might be in the form of a contract, publication, promotional activity, or one of many other means.

B. Associations

When the different participants interact with one another, their interaction is referred to as an association. The term association refers to the type of interactions that exist between people and/or organizations within the environment of industry. There are basically four types of associations. They are cooperative, competitive, social, and administrative. For example, when there are two pre-fabricated home enterprises that are attempting to sell a similar product, they are engaged in a competitive relationship. On the other hand a group of companies may work together in producing a space vehicle which will take men to the moon. This association is and must be a cooperative effort. Can you think of social relationships that apply to our study of American industry? Administrative relationships are evident in any enterprise. The basic organizational structure depicts the relationship of one department or group to another.

Labor unions provide examples of relationships. The ability of organized labor to compete with administrators for wages becomes a competitive venture. Can you think of social and administrative relations within the union itself?

Read student booklet, Operating An Industry, pages 5 at the bottom to the top of 8.

Questions:

6. Read the paragraph at the bottom of page 6 and top of page 7 in Operating An Industry. What type or types of associations do you find in this paragraph?

(Lesson 3)

2

C. Incentives

To encourage associations between the different participants, a number of incentives are often used. Incentives are the motives that encourage good industrial relationships.

The most common incentive for good relationships with labor (if organized, this would be union labor) or employees is compensation. This term would include salaries, bonuses, sick pay, insurance, paid vacation, and expense accounts.

Another incentive is philanthropy. A company may encourage good relations with the public by giving money to charities, clubs, etc. The reasoning behind charitable gestures may vary; can you think of some?

An enterprise tries to please its customers by providing them with quality products and good service. Hopefully, this will create a positive attitude toward the enterprise on the part of the company. This positive attitude is called "good will."

A fourth incentive is opportunity. Companies usually attempt to make opportunity available for their employees. This would refer to their chance to advance to a better job or position.

Companies also attempt to create a good relationship with their employees by offering certain security. For example, a company may guarantee a man a job for a period of time or assure him of advancement. Have you learned of situations like this?

Another incentive that is often used to encourage good work is status. A company may encourage employees to work hard to obtain a higher position within the company or society for the sake of recognition or status.

Read student booklet, Operating An Industry,
pages 8 to the top of page 11.

Questions:

7. List the six incentives which are used to promote effective relationships.

8. Refer to Question #5. Determine which of the six incentives is involved in your example.

9. Can you think of any occasion in your own community which might be an example of philanthropy?

10. From your own experience or from an experience which has happened to your family, describe an incentive as it has been used by some enterprise.

D. Control

Involved in the associations of all participants is a certain type of control. Control is the directing, guiding, or restraining of powers to assure that an industrial relationship conforms to certain prescribed objectives.

A company may choose to practice democratic control and give each employee a voice in company operation.

In another instance a company may choose to be autocratic and have the supreme decision making authority in the hands of one individual or group.

The type of control referred to as laissez-faire may be best illustrated by a company's "hands-off" policies concerning its control over dealers. They consider themselves responsible only to the point of getting the product to the dealer. From that point on the marketing is up to the dealer.

Read student booklet, Operating An Industry, pages from the top of 11 to 13.

Questions:

11. After each of the following paragraphs, write in the type of control(s) which has occured. (In some cases you may find a combination of controls being illustrated.)

    a. Our family plans to take a two week camping vacation. This last weekend I took a trip to the big vacation show which took place in a near-by city. While there, I saw a camper trailer which really "turned me on." The salesman offered me the trailer at a discount and I bought the trailer. Boy, was my family surprised when I came home.

    b. After many weeks of negotiating meetings of company representatives and the union bargaining committee a final offer was made by company representatives. Many employees felt that working conditions were poor and that the final offer did not meet their requests. A meeting was set to discuss the question of accepting or rejecting the offer. If the offer is rejected, the members will be asked to vote on whether or not they wished to go on strike. (Discuss the reasons for your answer.)

    c. A grocery store employs five people to operate it six days per week. It is owned by one person who informs each person being hired: "Don't make any changes in this store until you have my permission."

    d. From the examples above give one of your own for the following control forms: (1) laissez-faire, (2) democratic, and (3) autocratic.

4

12. Describe your concept of relationships. (You may use sketches or other graphic means to clarify your description.)

V. Evaluation

A. Democratic control involves:

_____1. All authority in the hands of one person.
_____2. All authority in the hands of a small group.
_____3. Each individual has a voice in decisions.
_____4. Each individual owns a share of the company.

B. Autocratic control involves:

_____1. All authority in the hands of one person.
_____2. All authority in the hands of a small group.
_____3. Each individual having a voice in decisions.
_____4. The privilege of each individual having a vote.

C. Laissez-faire is typified by:

_____1. "Hands off policy."
_____2. Practically no control.
_____3. Allowing things to take their own course.
_____4. Allowing each person to vote.

D. The four elements of relationships are:

_____1. Control.
_____2. Incentives.
_____3. Status.
_____4. Source.
_____5. Participants.
_____6. Association.

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor________________________________ Date____________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)______

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________
____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain______________________________________
____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________________
____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain______________________________________
____

6. Which activity did you use?____
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain____________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain____________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references____________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made____________________

____

LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Lesson 4 - Obtaining Industry's Needs: Procurement (2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

State in his own words that procurement is the locating and acquiring of the property and services needed by industry and that the seven considerations in procurement are: need, method, source, quality, quantity, schedule, and price.

II. Scope

This lesson is an introduction to the study of procurement as it relates to American industry. Seven major considerations of procurement are brought out as being necessary to achieve the goal of successful purchasing. They are: need, method, source, quality, quantity, schedule, and price.

III. Resources

A. Instructional media

1. First level film catalog.

2. OT: *Procurement: The Attributes Of*.

B. Literature

1. Student booklet, *Operating An Enterprise*, pages 13-23.

2. *Business Management*, John A. Shubin, 1957, Barnes and Noble, Inc., New York, pages 173-194.

3. *Marketing*, Heidingsfield and Blankenship, 1964, Barnes and Noble, Inc., New York, pages 119-125.

4. *Purchasing and Materials Management*, Lee and Dobler, 1965, McGraw-Hill, New York.

5. *Purchasing Handbook*, G. W. Aljian, Editor-In-Chief, 1966, McGraw-Hill, New York.

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IV. Content Outline

A. Introduction

1. Use the following paragraph to introduce procurement:

Most manufacturing companies spend more than half of the money they take in for materials, physical facilities, and services (Moore, 1961). Chrysler and General Electric spend $8 million a day. Ford spends $10 million daily and General Motors spends $25 million a day. It is easy to spend money and it is easier to buy than to sell, (cite example) but purchasing is more than just placing orders or buying.

2. At this point use the developmental technique to identify the seven considerations of procurement. The following story may serve as a guide:

When purchasing a new pair of shoes you must consider whether or not you have a NEED for the shoes and also for what purpose they are going to be used. After you have determined a need for the shoes you would most likely give some thought to the following: Will you make them, buy them, or lease them? How good or poor should the quality be--if your feet are still growing you may not want high quality, but if you are full grown you may want high quality. Also, in what quantity should you buy them--is it cheaper to buy more than one pair of shoes at a time? Is this the best time (schedule) to buy this particular type of shoe or would it be better to wait until summer--tennis shoes may be on sale this winter, but usually are worn in the summer. Can you find a lower price somewhere else or is this the right time to buy for a good price? And finally which store or person do you want to buy these shoes from--you must select the source from whom you know will give you the best service at a good price. As you see, there are many considerations involved in procurement.

Use chalkboard and outline the seven considerations as they are developed by the class.

3. How did Pronto Pre-fabs procure their men and materials? Why did they have more than one price check before purchasing? Did they have a buying schedule?

4. (Discuss Pronto Pre-fabs procurement as related to need, quality, quantity, method, source, schedule, and price.)

B. Activity and content

1. From the preceding discussion, we could conclude that procurement is the locating and acquiring of the property and services needed by industry.

2. In purchasing or procuring any item of property, certain considerations enter in just as they did in deciding on a pair of shoes. These contributions are: (Project OT: Procurement: The Attributes Of.)

   a. Need.

   b. Method.

   c. Source.

   d. Quality.

   e. Quantity.

   f. Schedule.

   g. Price.

OT: Procurement: The Attributes Of

3. Can you apply the same considerations to the purchase of one of the following items?

   a. Typewriter.

   b. Camera.

   c. Bicycle.

   d. Shotgun.

   e. Portable electric circular saw.

   f. Ball-point pen.

g. Golf ball or tennis ball.

h. Tape recorder.

i. Spincasting rod.

4. If your class is planning a student product, you should be giving similar considerations to the various materials which are to be procured for use in the product.

C. Conclusion

1. Select three materials that are needed for your next product. Attempt to pick those materials that will be most unusual or will involve the most considerations.

2. Divide the class into three committees with each committee delegated the responsibility for the procurement of one of the previously selected materials.

3. The fact that the material is necessary for the product to be produced is evidence of the consideration of need.

4. The second consideration to be made by each committee will be the method of procurement. Will the material be made, purchased, or leased?

5. If the material is to be purchased, a source must be located. It would probably be desirable to establish at least three sources for the materials if there is to be concern for the other considerations.

6. If any "shopping around" has been involved in the selection of sources, there is probably an awareness of differences in quality or appearance of the material available from the various sources. At this time it will be necessary to decide the exact quality of the material for the product to be produced. On the accompanying Purchase Order write out the exact specifications for the quality of material to be ordered. This is to be put under "Description."

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7. Determine how many of your product will be produced. Take into account the material that will be wasted, material for prototypes, material for promotional or complimentary copies. From this you should be able to calculate the total quantity of material needed for your product. Be sure to put this figure under "Quantity" on your Purchase Order. Under "Unit" you are to indicate whether the quantity is to be pounds, feet or inches, quarts, boxes, sticks, board feet, cases, lugs, squares, sheets, or whatever unit is appropriate for the quantity.

8. When will these materials be needed? How long will it take to get them? Is this the right or wrong season for this material? Will this material be on sale next week at a lower cost? Will the Christmas rush make a difference in delivery time or cost? Is there a good time and a poor time (schedule) to buy this material? When these questions have been answered the "Delivery Date" for this material can be filled in on the Purchase Order.

9. When quality, quantity, and schedule have been determined we can then return to our potential sources for our needed materials in order to arrive at a price. These sources might look at our specifications of quality, the amount we will need, the delivery date, and from this information arrive at a price. They may put this price in the form of a bid which is an agreement to sell at a quoted price, or they may simply discuss the price and give a verbal quotation based on discussion. Once the best price has been determined based on the considerations of quality, quantity, and delivery time, this price could be entered in the Purchase Order and the source written in on the Purchase Order under "Ordered From." Don't forget to put the name of your organization and its address under "Deliver To."

10. You have now gone through all the considerations in procurement. Your Purchase Order should be complete and you should be ready to proceed with acquiring the materials needed for your class to produce the product as planned. As you follow through the delivery and use of this material, see if there is any way in which you could improve the considerations involved in procurement.

13

PURCHASE ORDER

Purchase Order No.________________

Ordered From:

____

____

____

Deliver To:

____

____

____

Delivery Date:________________

Immediate Shipment Requested ☐

Requested On or Before________________

Date Promised________________

Quantity	Unit	Description (Give Exact Specification)	Unit Price	Cost

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V. Evaluation

A. Procurement is involved in:

_____ 1. Moving machines and equipment
_____ 2. The curing of materials before processing
_____ 3. Locating and acquiring property
_____ 4. Locating and acquiring needed services

B. The need for procuring happens when you:

_____ 1. Decide to buy a pair of shoes
_____ 2. Sell your bicycle
_____ 3. Take a new job
_____ 4. Plan to hire an architect to design a new house

C. Method as a consideration in procurement occurs when a decision is made to:

_____ 1. Buy the necessary materials
_____ 2. Get bids on the cost of overhaul
_____ 3. Lease the heavy equipment
_____ 4. Make the replacement parts
_____ 5. Survey the obsolete trucks

D. Some considerations in procurement are:

_____ 1. Price
_____ 2. Location
_____ 3. Quantity
_____ 4. Source
_____ 5. Manner
_____ 6. Quality
_____ 7. Schedule
_____ 8. Purchaser

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this Lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor______________________________ Date__________________

Unit Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________

6. Which activity did you use?____________________
The activity used in this lesson (a) ☐ was adaquate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain____________________

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

____

LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Lesson 5 - Procurement Affects Profit (1 period)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Relate that profit is directly affected by procurement policies and that the decision to make, buy, or lease can be essential in getting the most value for the money spent.

II. Scope

In procuring anything, there are certain considerations and decisions to be made. The decision to build, buy, or lease (method) is important and is based on available labor, cost of labor, price demanded by a supplier, time considerations, and leasing stipulations. The decision to build, buy, or lease can be essential in maintaining production schedules, in the caliber of the product produced, and in the final cost and profit.

III. Resources

A. Instructional media

1. First level film catalog.

B. Literature

1. Purchasing and Materials Management, Lee and Dobler, 1965, McGraw-Hill, New York, pages 294-308.

IV. Content Outline

A. Introduction

1. Bread for sandwiches, bread for toast, bread and jam after school, bread and peanut butter for lunch, and bread with dinner! Where did the bread come from--and why? Mom might have bought it at the supermarket or she might have made it. Is it cheaper from the supermarket? Do the kids eat home-made bread better? Is it too hot a day to have an oven turned on for bread? Is there yeast for bread? Is the supermarket bread as healthy for the kids? The answers to all these questions determine whether mother will buy or bake the bread needed for her family. The answers to all these questions determine the method of procuring bread for the family.

2. In industry, to make is to manufacture the needed property in the plant. To buy is to acquire the needed property or service from an outside source. A third alternative is to lease which is to obtain the use of another's property or services for a specified time for fixed payments.

3. Under average conditions of ability and money, what method or methods of procurement would be used in acquiring the following property?

a. Automobile.	(Buy or lease.)
b. Shoes.	(Buy.)
c. Bread.	(Buy or make.)
d. Book.	(Buy.)
e. Computer.	(Buy or lease.)
f. Home.	(Buy, make, or lease.)
g. Lumber.	(Buy.)
h. Galvanized iron sheets.	(Buy.)
i. Factory building.	(Buy or lease.)

B. Activity and content

1. In industry, the decision to make, buy, or lease is based on a good deal of study about the implications of procuring facilities, materials, or services. The final decision is based on:

    a. Careful analysis of a new product for parts requirement.

        (1) Are tools and equipment available to make the parts?

        (2) Must tools and equipment be purchased to make the needed parts?

    b. Unsatisfactory vendor performance for such reasons as:

        (1) Inability to perform complex operations.

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(2) Unstable quality.

(3) Poor service.

(4) Price increases.

(5) Disproportionate cost.

c. Decreasing or increasing sales with reduced or increasing production activity. When a plant is running at full capacity, it's not practical to consider making any items which are needed.

2. Activity #1

Make, buy, or lease situations.

Activity #1

(Teacher: The class can be divided into two, three, or four groups depending on the size of the class. Each group can be given a situation for which they are to make the decision to make, buy, or lease. They can then present their decision and arguments backing that decision to the rest of the class. Other members of the class should be allowed to challenge or raise opposing points of view.)

Student: You are to study the situation or situations assigned to you. You are to arrive at a decision to make or buy the items being considered based on the conditions stated in the assigned situation. Be prepared to present your decision to the class and to give arguments defending your decison.

Problem #1:

Our company has need for 120 small display cases. An immediate supply of the display cases would make it possible to put our product on the market within the next 15 days. For the time being, our production schedule is crowded and will remain crowded if we can gain our anticipated share of the market.

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A small local concern has set up a facility for specialized custom work in producing display cases, hoping to provide this service for a number of local manufacturers. The cost of having the outside concern make the display cases would be slightly higher than making them in our plant. However, the reliability of the outside concern has not been established because it has existed for only a short time.

We have the tools, equipment, and materials available to produce the display cases in our own plant. Because our production schedule is crowded, it would be necessary to wait for 30 days or more before we could produce the cases. The only alternative would be to cut back on production in order to make the cases in our plant.

The board of directors expects a decision tomorrow.

Problem #2:

Another manufacturer has been supplying us with cast iron sheaves for the past nine years. The quality of the sheaves over this period of time has been very good.

Recently this manufacturer has been threatened with a strike. Because of this labor unrest, there has been some turnover of skilled labor.

We must have the needed items within 30 days if we are to maintain our production schedule.

We could make the needed items in our own plant if we were to purchase one additional piece of equipment whose cost is quite high.

The board of directors expects a decision on this tomorrow morning.

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Problem #3:

One department in our plant has an excess capacity which is going to waste. The foundry could produce 30% more than is being scheduled at the present time.

One item that we need could be produced in the foundry with no additional equipment, but with the addition of six more workers. At the present time we could produce the items cheaper than we can buy them.

However, future anticipated labor costs threaten to increase enough to make it possible for make or buy costs to reverse themselves.

The board of directors wants the decision to make these items or to buy them by tomorrow morning.

Problem #4:

Our plant is in a slack season at the present time. Some of our skilled workers are busy only half the day, but we want to keep them on full salary in order to hold our labor force.

We have the tools, equipment, and materials which would be necessary in order to make some taper pins which are used in volume throughout production in our plant. In the past we have purchased these taper pins from a small local concern. These taper pins won't be needed for another 60 days inasmuch as we have a good supply on hand.

We do not know how the local supplier of these taper pins will be effected by the withdrawal of our order. Being a small concern, it may go bankrupt without our business, or if they get a large order from another manufacturer, they may not be in a position to accept an order from us in the future.

So we make or buy the taper pins? The president of our company wants a decision by tomorrow morning.

C. Conclusion

To make, buy, or lease is a decision which faces us daily. Too often we come to such a conclusion without realizing that it is a part of procurement. The results of this decision can be far reaching. It is important to finance, production, management, and many other concepts of industry

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V. Evaluation

A. Under conditions of limited equipment, ability, and finances, would you make, buy, or lease the following items?

________ 1. Specially designed simple type of garden tool rack

________ 2. Typewriter

________ 3. Dog house

________ 4. Office space in an office building

________ 5. 1/2" straight shank, high speed, twist drill

________ 6. Truck for hauling some bulky equipment for one trip

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

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Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor______________________________ Date____________________

Unit Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________

6. Which activity did you use?____________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

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10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

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11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

____

LEVEL I - American Industry — Stout State University
UNIT IV - Operating An Enterprise — Summer, 1967
Lesson 6 - Value Analysis Applied to Procurement (2 periods)

I. Objectives: At the conclusion of this lesson the student should be able to:

Apply the concept of value analysis to procurement by making purchasing decisions based upon factors that provide the greatest value for the purchaser.

II. Scope

In this lesson value analysis will be applied in a systematic way to the procurement of goods or services required by industry in order to function properly.

III. Resources

A. Instructional media

B. Literature

1. Techniques of Value Analysis and Engineering, L. D. Miles, 1961, McGraw-Hill, New York.

IV. Content Outline

A. Introduction

1. The concept of value analysis is a procedure of investigation designed to give maximum quality for time or money expended. (We want equal performance at a lower cost.)

2. This concept can be applied by an engineer who is designing an automobile, an architect designing a home, a purchasing agent buying materials for his company, and even by a housewife buying groceries.

B. Activity and content

1. In order to conduct a value analysis we must answer five questions. If the analysis is to be effective, we must supply complete and valid answers. Let's review the questions. They are:

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a. What is the item? Identify the item in descriptive terms.

b. What does it cost? Historical data based upon previous purchases may be used. Catalogs, bid prices, etc. also may give accurate prices.

c. What does it do? A simple descriptive answer is required. This means that we do not consider the effects of the product, but a simple description of what the item does. Some examples are it secures a motor, it supports a pulley, it conducts electricity, and it holds water.

d. What else would do the job? There are usually many alternatives which can accomplish the task that the item was designed to do. We do not merely "pull the answers from the air." A search into the literature, contact specialist, or do some research to find the answers. This phase of value analysis must be effectively done if your analysis is to be successful.

e. What would the alternative cost be? Again you will have to use accurate cost data from the records of the business or find the information by doing a cost study, contacting suppliers, or referring to current catalog prices.

2. We have discussed the qestions involved, now we will solve a problem using the value analysis technique. (Distribute the value analysis forms and the "bicycle rack" activity sheets.)

3. Before we start, let me read a poem that describes why we use value analysis. (See poem The Path of the Calf on the next page.)

4. Each of you will attempt to solve a familiar problem. It concerns a bicycle rack. Read the problem, then answer the questions on the form. The cost of the half-inch rod is $_____ per foot and the one inch rod is $_____ per foot. (The teacher must supply current prices of this stock.` He should also describe the type of metal used in the stock.)

PATH OF THE CALF

One day through the primeval wood
A calf walked home as good calves should;
But made a trail all bent askew,
A crooked trail as all calves do.
Since then three hundred years have fled,
And I infer the calf is dead.
But still he left behind his trail,
And thereby hangs my moral tale.
The trail was taken up next day
By a lone dog that passed that way;
And then a wise bellwether sheep
Pursued the trail o'er hill and glade,
Through those old woods a path was made.

The years passed on in swiftness fleet,
The road became a village street;
And this, before men were aware,
A city's crowded thoroughfare.
And soon the central street was this
Of a renowned metropolis;
And men two centuries and a half
Trod in the footsteps of that calf.
Each day a hundred thousand rout
Followed this calf about,
And o'er his crooked journey went
The traffic of a continent.
A hundred thousand men were led
By one calf near three centuries dead.
They followed still his crooked way,
And lost one hundred years a day;
For thus such reverence is lent
To well established precedent.

Samuel Foss

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5. (Allow the students to answer as many of the questions as they can. You will probably have to help some in determining the cost and guide them in answering other questions.)

6. (After the students have completed their activity sheets, ask them to discuss their answers in a question and answer period. Use the format of the value analysis form at the chalkboard.)

    a. (Make note of the various costs, Question #2.)

    b. (Note the answer to #3--they must be descriptive.)

    c. (Questions #4 and #5 should be discussed thoroughly. In some cases allow the student to explain his answer at the chalkboard by using sketches.)

C. Conclusion

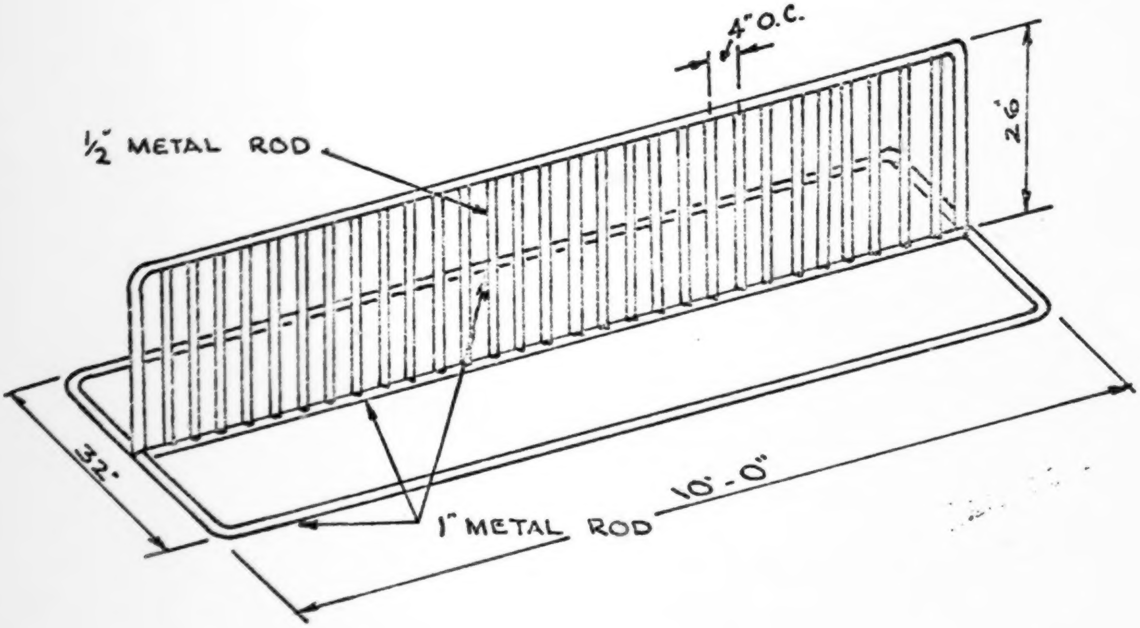
1. Many items used by industry and in the home are of reliable quality and by applying the value analysis technique we might leave them as we found them. However, in many cases we will reap the benefits provided by utilizing the value analysis technique. Application of this technique may be found in engineering, management, finance, procurement, and marketing.

    In each case we are attempting to identify unnecessary costs. The unnecessary costs would be costs that do not improve the quality, life, or appearance of the item.

THE BICYCLE RACK

The problem below is designed to help you understand value analysis. We have discussed each of the basic questions that must be answered in order to arrive at an answer. Use the Value Analysis Form for your answers.

The challenge is: A bicycle rack is presently made from one half inch metal rod with a base frame made from one inch rod. The rack is 10 feet in length with spacing rods 4 inches on center. (See drawing below.) Use the value analysis techniques in determining whether you would be getting maximum quality for the money spent.



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Unit IV
Lesson 6
Activity

Name______________________
Date______________________

VALUE ANALYSIS FORM

1. What is the item?____________________________________

2. What does it cost? $____________________________________

3. What does it do?____________________________________

4. What else would do the job?____________________________________

5. What would the alternate cost be? $____________________________________

6. Comments:____________________________________

V. Evaluation

A. In your own words define value analysis.

B. When can we apply the value analysis technique?

C. What are the five basic questions that must be answered when applying the value analysis technique?

1.______________________________

2.______________________________

3.______________________________

4.______________________________

5.______________________________

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor____________________________ Date____________________

Unit Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________________

____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain________________________

____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________________

____

6. Which activity did you use?____________________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ______________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ______________________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ______________________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ______________________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______________________________

LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Lesson 7 - Supplier Competition (1 period)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Identify and make simple applications of the three basic methods used by buyers in seeking the competitive prices.

II. Scope

Procurement has a direct affect on every enterprise. It affects the final price of goods or services being produced through the purchase of materials, supplies, or services needed for planning and producing. In this lesson we will study the methods used in seeking competitive prices.

III. Resources

A. Instructional media

B. Literature

1. Purchasing Handbook, George W. Aljian, 1966, McGraw-Hill, New York.

2. Purchasing and Materials Management, Lee and Dobler, 1965, McGraw-Hill, New York.

3. Procurement, The Modern Science of Purchasing, Henry G. Hodges, 1961, Harper and Brothers, New York.

IV. Content Outline

A. Introduction

1. Machine downtime, absence of personnel, and failure to meet production schedules cause production costs to rise. However, another main reason for production problems involves the procurement of materials and supplies. They must be purchased at the "right price," be of a specified type, and delivered on schedule. If any of the requirements mentioned above is missing, money is lost and profits decrease.

2. This lesson will be devoted to a study of how to obtain the right price with minor emphasis on specifications and schedule.

B. Activity and content

1. In the home, as in a business, the purchaser usually attempts to buy at the right price. The right price means at a competitive price.

2. How do we purchase at competitive prices? In this lesson three basic ways are discussed. They are:

    a. Buying after studying published price lists.

    b. Asking for competitive bids from prospective vendors before buying.

    c. Negotiating (conferring and bargaining to reach agreement) is also used in getting a competitive price from sellers or vendors.

3. In everyday life we use one or a combination of the above methods of purchasing. In most purchasing we use the price list, competitive bid and/or negotiation method.

4. Price lists--the price list is a form of price quotation which is published by a company with goods or services for sale. Often we refer to these as "asking prices" as they may not be the actual selling prices.

    What are some common published price lists we know of? (Have your students name some.) Examples:

    a. Dealers price list for cars, trucks, tractors, etc.

    b. Catalogs for clothing, hardware, lumber, etc.

    c. Service price lists for electricians, barbers, plumbers, etc.

    d. Can you think of others?

6

Which of these could be referred to as an asking price rather than an actual selling price? (Car, truck, large purchases of lumber--others?)

Let's consider another way to buy at the "right price"--competitive bidding.

5. Competitive bidding--competitive bidding is done by allowing two or more suppliers to submit their bids for providing an identified good or service for a purchaser. An example would be the purchase of a home or office building. The plans and specifications (the description) would be sent to various contractors who would submit a bid (also called an offer) to the persons or company who is having the building constructed.

   The lowest bidder gets the job provided he is deemed qualified to do the work.

   It should be noted that competitive bidding is just one way of getting a price. The method of getting the right price is dependent upon the purchase to be made.

   Can you identify other items that might be purchased by using competitive bids? (A fleet of cars, furniture for a school, large quantities of food, etc. Have the students think of others.)

6. Negotiation--the third way of purchasing is through negotiation. Negotiation is conferring in a bargaining session in order to reach an agreement on price. Negotiation would be used when procurement time is short, when there are only a few suppliers, or when the amount of purchase is small and does not warrant bidding.

   Can you think of examples where you or your parents may bargain (negotiate) for a more competitive price? (Examples: auto, home, large appliances, expensive equipment, or even a bicycle.)

7. As an activity let's apply these methods to our American Industry enterprise. (Describe the goods or services needed to produce your next product and have the students use one or a combination of the purchasing methods discussed in preparing to purchase the items needed.)

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8. (Another activity could be to have each student select a purchasing method(s) in getting competitive prices on one of the two bicycles listed below.)

    a. Bicycle--three speed, 1 3/8 inch tube type racing tires, 26 inch wheels, standard type with light only.

    b. Bicycle--one speed, tire number 175 tube type, 26 inch wheels, standard model with light.

    (Assign this today. Ask for their results in one week.)

C. Conclusion

1. To conclude this lesson we will apply what has been learned about competitive purchasing.

2. I will identify something we are (in theory) planning to purchase. I will also describe the product, state the quantity needed, and the date required. Then, the class will decide which one or combination of the following should be used in purchasing.

    a. Price lists.

    b. Bidding.

    c. Negotiation.

3. The goods or services to be purchased are: (Discuss these one at a time and add others of your own. The teacher will have to supply the dates required.)

Quantity	Name and Description	Date Required
1	Truck--two ton load, flat bed, (16 feet long).	(One week)
70	Refrigerator--14 cubic foot capacity, white, self-defrosting, electric.	(Six months)
200 Board Ft.	Walnut lumber, (one inch thick), random length and width.	(One month)
5 Gal.	Paint, white, exterior type, lucite.	(One day)
(Approx.) 300	Grease jobs for standard automobiles, (fleet of taxis).	(Over a period of six months)

TEACHER: Add others of your own.

,9

V. Evaluation

A. Define and give an example of the following as they are related to competitive purchasing.

1. Price list: ______________________________

2. Negotiate: ______________________________

3. Bidding: ______________________________

B. Described below you will find two purchases that must be made. State the method(s) you would use and why.

1. 1,200 gallons SAE 10 oil, detergent type, required in four months.

   Method(s) of purchasing: ______________________________

   Why? ____

   ____

   ____

   ____

   ____

   ____

2. One refrigerator, 12 cubic foot capacity, color--bronze, self-defrosting, electric, required in four weeks.

   Method(s) of purchasing: ______________________________

   Why? ____

   ____

   ____

   ____

   ____

   ____

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

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Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor______________________________ Date____________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

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4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________

6. Which activity did you use?____________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain____________________

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items____________________

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____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain____________

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10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references____________

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11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made____________________

____

LEVEL I - American Industry
UNIT IV - Operating An Industry
Lesson 3 - Industry Uses a Variety of Materials (1 period)

Stout State University
Summer, 1967

3

I. Objectives: At the conclusion of this lesson the student should be able to:

Define materials, identify natural and man-made materials, and name several materials frequently used by local industries.

II. Scope

Emphasis is placed upon the important role materials play in industry. Also, an overview of the nature of materials is presented.

III. Resources

A. Instructional media

1. Variety of materials. (See the introduction to this lesson, IV, A, 2.)

2. Ditto copies of student activity sheets.

B. Literature

1. Student booklet, Operating an Industry, page 23 to paragraph one on page 25.

2. American Industry Resource Material, Materials.

3. Literature from industry and trade associations related to materials.

IV. Content Outline

A. Introduction

1. Name one item in this room which is not made out of some material. (Allow students time to think and express their thoughts. Some students will then come up with the thought that materials are necessary to make anything.)

2. What are materials? (Show your students metals, woods, clay, oil, cloth, paper, plastics, glass, paint, wax, plastic, and other materials found in your lab. Develop the definition of materials as the substances found in the universe. Write this definition on the blackboard.)

B. Activity and content

1. The world of industry may be compared to a football game. The man-power, skills, and capital all may be provided, but without the materials (football) with which to use these commodities the game of production will not begin, no matter how great the needs or wants may be.

2. Some materials we use in their natural form. Other materials must be converted or combined by man to make them useable in producing a product. All materials that are produced by a manmade process are referred to as synthetics.

3. Synthetic materials are those that are produced by a manmade process, rather than of natural origin, to help supplement our natural materials.

   a. For example, during the war when the United States couldn't get natural rubber, our scientists developed synthetic rubber.

   b. Synthetic materials were also developed by man to supplement our depleting natural resources, such as manmade diamonds, plastics, etc.

   c. Some synthetic materials were developed by man because he saw the need to replace some of our natural materials with something, less expensive, more desirable or versatile. For example, vinyl is in many situations replacing leather because it is easier to care for, is waterproof and less expensive.

4. To help us in our study of materials, we find that we can classify them into 12 different families. These families are air, water, stone, fossil fuels, food, metal, rubber, plastic, wood, fibers, natural oils, and chemicals.

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(Teacher should prepare a chart divided into material families and have pictures attached which pertain to each family or have students list all the materials found in an automobile. List and classify.)

5. The use of materials by industry is determined by the properties which the materials possess. The properties of materials are the qualities that describe the specific characteristics of a material. A material may have few characteristics or it may have a large number of characteristics that are overlooked because they are so common to that material.

   (Teacher should select specimens of severl materials and ask students to state what that material is like. In this way they will begin to look for characteristics of materials. Material properties and characteristics will be covered in-depth in a following lesson.)

6. We find materials in three conditions or forms (state):

   (Relate each state to actual materials. Students should be able to volunteer this information.)

   a. Liquid: A substance that flows readily.

   b. Solid: A substance that has a certain rigidity or firmness.

   c. Gas: The fluid air-like form of a substance which can expand indefinitely.

C. Application

1. What materials did we use in our student enterprise in Unit I? (Discuss and list them on the board. Classify them by family.)

2. What materials did Pronto Pre-fabs use? (See pages 23-25 in student booklet, Operating an Industry. Also, discuss other materials probably used.)

3. (Discuss the materials used by local enterprises. Classify them by family. Try to achieve the analysis level with your students at this point.)

4. (Assign the activity sheet, 101 Materials. This will be homework.)

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D. Summary

1. Main points of the lesson.

   a. (Importance of materials to industry.)

   b. (Define materials as being the substance(s) of which anything is composed or may be made of.)

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V. Evaluation

A. Object test: Place samples of materials at several stations and have your students identify whether the material is natural or manmade, its family, and a possible use of the material in a local enterprise.

7.8

LEVEL I - American Industry
UNIT IV - Operating an Enterprise
Lesson 8 - Industry Uses a Variety of Materials
Student Activity Assignment Sheet #1

Name__________________
Date__________________

101 MATERIALS

Industry uses various materials in production. Many of the materials which you can identify in your immediate surroundings were not even discovered until after you were of school age. Many better materials will be discovered before you finish school. You cannot hope to be familiar with all of them. It would be a hopeless and never-ending task. However, you should have at least a passing acquaintance with a few of the common materials now used in industry. So let's identify some common materials. Let's identify 101 common materials in a car.

101 COMMON MATERIALS

Several hundred materials go into the production of a car. You are going to identify 101 of these materials. You will find this interesting, challenging, and hopefully enlightening. You might start by looking in the enclyclopedia. Looking under the term automobile will get you started. However, you will get names faster if you break the car into parts and look for the parts. For example, look for tire, air (in tire), oil products, gas, battery, generator, spark plugs, seat covers, car paint, etc. You will quickly discover that finding 101 materials is not so difficult as you might have first imagined. Neatly number and list the materials on notebook paper and attach to the back of this activity sheet.

Grade__________

IS YOUR LIST CONFUSING?

You have discovered by now that there seems to be no end to the number of materials that we could find and identify. You might just as well have been asked to identify 1001 materials used in industry. If we are to work with all of these materials, we must have some easy way of organizing them besides just listing them as you have been asked to do. Take a good look at your list. You have solids, gases, liquids, woods, stones, elements, compounds, etc., all mixed in one list. It is much easier to work with materials and understand them if we put them in some logical categories. Your instructor has given you one way you might categorize materials. To make your list of 101 materials more meaningful, neatly list the materials under an appropriate material category on notebook paper and attach to the back of this activity assignment sheet.

Grade__________

Level II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor______________________________ Date____________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain______________________________

____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________

____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain______________________________

____

6. Which activity did you use?______________________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________
____

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13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______________________________
____

LEVEL I - American Industry
UNIT IV - Operating an Enterprise
Lesson 9 - Materials Have Many Characteristics (2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Identify salient characteristics of materials found in the American Industry lab and used by local enterprises.

II. Scope

Esthetic, mechanical, electrical, optical, lubricating, protective and cost characteristics of materials are discussed.

III. Resources

A. Instructional media

1. Duplicate activity sheets.

2. Assemble sets of materials to be tested in the activity. Have the temperature test done at one station.

3. Collect the following set of materials for the lesson: Wood, plastic sheet, sheet metal, solder, steel rod, glass tube, glass (sheet), fabrics, paper, rubber (two balloons), modeling clay, sugar lumps (cut into small pieces), oil, grease, water, paint, ink, turpentine, cheese, cement block, three bricks, and asbestos.

4. Propane torch or similar heat source.

B. Literature

1. Student booklet, Operating an Industry, pages 25-28.

2. Industrial Design Journal.

3. Materials in Design Engineering Journal.

4. Materials Engineering Journal.

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IV. Content Outline

A. Introduction

1. In the last lesson, we discussed the importance of materials in industry.

   a. All goods are made from materials.

   b. Most services require materials.

2. We found that materials can be solids, liquids, or gases.

3. We also learned that materials can be natural or manmade.

B. Activity and content

1. Today we are going to look at some other properties of materials.

2. First, let us list the properties which make materials decorative and pleasing to our senses. (Use appropriate samples of materials from your set of materials to bring out the following properties:)

   a. Color.

   b. Pattern.

   c. Texture.

   d. Taste (Give each student a small sample of sugar and cheese.).

   e. Smell (Have your students sniff a sample of turpentine.).

   f. Would Pronto Pre-fabs be interested in any of these properties? (Discuss.)

   g. Were these materials properties considered in our student enterprise in Unit I?

3. Industry also needs materials which can support heavy loads and withstand stresses. (Use appropriate samples of materials from your set of materials to demonstrate the following properties:)

   a. Elastic (Ability to retain original shape under stress. Twist, pull, flex, and place a load on material samples to show this.).

   b. Plastic (Changes shape with force and pressure. Blow up one of the balloons.).

   c. These are some of the mechanical properties of materials.

   d. Was Wes concerned with some of these mechanical properties? (See page 25 in student booklet, Operating an Industry.)

4. In the last unit, we discussed how energy was transferred from place to place through materials which conduct electricity readily. (Test the conductivity and dielectric qualities of some of the materials with a multimeter.)

5. For some purposes, it is necessary to consider the transparency of materials. Car windows have to admit light and give a clear view. Camera lenses must transmit light without distortion. (Show materials which transmit light.)

6. In some situations, materials are needed which are not transparent. These materials are opaque. (Show opaque materials and discuss when this characteristic is important.)

7. (Hand two different materials of equal size but different density to one of your students.) What property do you notice in these two materials? (Weight difference.) What causes this? (Difference in density.)

   a. Can this be an important property? (Note how aluminum parts are used in cars and the search for light-weight materials for aircraft.)

   b. How can the weight of materials be a concern for Pronto Pre-fabs?

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8. In the last unit, we discussed the maintenance of equipment in the property concept. At that time we found that certain materials have lubricating qualities. (Have one or two of your students rub their fingers on a metal plate under the following conditions: Dry and with the following as lubricants--oil, grease, water, turpentine, and clay. Ask them under which conditions their fingers slip over the metal with the least force.)

9. Pronto Pre-fabs was interested in another characteristic of materials--their reaction to temperature changes. (See pages 26 and 28.)

   a. Why was this characteristic important to Pronto Pre-fabs?

   b. What are some of the reactions of materials to temperature changes? (Demonstrate with a heat source that some materials become pliable, others hot, some burn, some melt, and others are relatively unaffected.)

10. Read the first full paragraph on page 34 of your text, Operating an Industry. (Allow time to read this, be sure they have the correct paragraph.) What material characteristic was Wes concerned about in the materials he used for coating his homes? (Protective. Discuss several materials used for protective coatings--paints, sealers, plastic films, and plating such as zinc would be examples.)

11. What is another property of materials which is important to a successful business? (Give them enough hints to elect "cost" as the correct response.)

   a. What happens as the cost of materials used to make a product increase?

   b. What influence would increased materials costs have had on the success of our enterprise in Unit I?

C. Application

1. We have just seen that many materials are used by industry. Now, I want you to name some of the materials used by local enterprises. (Record these on the board. Leave room on the right to list the major characteristics of each material.)

2. Why do these enterprises use these materials? What is the most important characteristic of each material? (List these on the right of your original list.)

D. Summary

1. In this lesson, we discovered that materials have many characteristics. (Briefly review these characteristics: Aesthetic, mechanical, electrical, transparency, density, lubrication, reactions to temperature, and cost.)

2. (Assign the materials testing activity that follows. Provide enough materials so that your students can work without getting in each other's way. Select solids, liquids, and gases.)

V. Evaluation

A. You can include the listing of characteristics in the object test given for the last lesson if you are going to evaluate both lessons at the same time.

B. Using actual samples of materials (not the same samples used in the activity), have the student identify the aesthetic and mechanical characteristics of each sample.

LEVEL I - American Industry
UNIT IV - Organizing an Enterprise
Lesson 9 - Materials Have Many Characteristics
Student Activity Assignment Sheet #1

Name____________________
Date____________________

CHARACTERISTICS OF MATERIALS

Directions: Perform the tests listed below. Record your answers on these sheets. You will find a set of materials at each station where you will perform the tests given below. Write the name of each material above one of the columns drawn below.

PROPERTY AND TEST	MATERIALS 1	2	3	4	5	6
1. Aesthetic						
A. What color is the material?						
B. Does it have a pattern?						
C. What texture does it have?						
D. Is the material pleasing to look at?						
E. Is the material pleasing to touch?						

	1	2	3	4	5	6
2. Mechanical						
A. Can you twist the material out of shape?						
B. Can you flex the material?						
C. Can you rip the material?						
D. Can you bend the material?						
E. How much force is required to change the shape of the material?						
3. Transparency						
Can you see through the material?						

	1	2	3	4	5	6
4. How heavy is the material? Circle the heaviest material.						
5. Lubrication Place yes under the materials which have lubricating qualities.						
6. Temperature Heat the material as directed by your instructor. A. What happens when you heat the material? Be careful not to burn yourself!						

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	1	2	3	4	5	6
7. Protective qualities Could they be used to help preserve other materials? How?						
8. Cost What is the cost of the material?						

LEVEL I - American Industry
UNIT IV - Operating an Enterprise
Lesson 10 - Materials Are Selected For Fulfilling Specific Needs (2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

State that materials are selected to meet specific needs. In addition, he will be able to select materials to meet needs defined in the American Industry lab.

II. Scope

The previous lesson developed a basic knowledge of selected characteristics of materials. This lesson builds on these knowledges to make the student aware that materials characteristics have to be matched with product needs. The research skills learned in the last unit are reapplied in this lesson to give a systematic procedure for matching materials with product needs.

III. Resources

A. Instructional media

1. First level film catalog, Materials.
   Select a film which depicts the development of materials to satisfy industry's needs.

2. Sample materials and test apparatus.

B. Literature

1. Student booklet, Organizing an Industry, pages 23-28.

2. A materials handbook.

3. Reference books and pamphlets on various materials and their characteristics.

4. Catalogs which give current prices of materials.

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IV. Content Outline

A. Introduction

1. In the last lesson, we discovered that materials have many characteristics. Some are solids, some are liquids, and some are gases. Can you think of any other characteristics?

2. How do you think the characteristics of materials are connected with their uses? (Goods and services require materials in their production. The materials used must supply characteristics which make it possible for the good or service to fulfill a consumer need. For example, the important characteristic of the lubricants Dick and Dan used in their enterprise was the lubricating quality. Cost was second. Color would be of no importance.)

3. In many instances, industry has developed materials to meet special needs. Alloys, such as various types of steels, are made to meet the stresses and demands placed on modern tools and machines. Plastics and synthetic fibers such as rayon and nylon are other examples of man's efforts to develop materials for his needs.

B. Activity and content

1. (Use option a or b below to demonstrate that materials are manufactured to have specific qualities.)

   a. (Show a film. Preview, introduce, and summarize so the film brings out the above noted points.)

   b. (Have a set of materials. This set should have the following attributes: Solid, liquid, gas, natural, manmade, alloys, and composites such as plywood and woven fabrics. Use this set to develop the points noted in 1 above.)

2. We see that materials are often modified and designed to meet certain needs. How can we select the best material to use in our products here in class? For example, how did we select the material(s) for the product in our student enterprise?

3. Actually, we can use the procedures we learned in research to help us here. Just as we defined our research problem, we can define the need a material has to satisfy.

   a. If we wanted to produce a product which is to hold hot dishes on a table, what is our problem? (Refer back to the procedures used in defining research problems in the research area.)

   b. Are there other things to consider? (Note cost and aesthetic qualities.)

   c. What characteristics must our material have for this product? (Heat resistant, low heat conductivity, low cost, and pleasing to look at.)

4. (Apply this to Pronto Pre-fabs. Note how Wes selected his materials to meet specific needs.)

5. Pronto Pre-fabs was also concerned with the cost of its materials.

   a. Frequently, different suppliers will have materials that fit our needs but their prices will vary. (List some prices of materials you have in the lab. Especially note the different prices for the same material.)

   b. Thus, the person who purchases materials must consider whether the material satisfies a specific need and whether the price is reasonable. (Note pages 16 and 17 in Operating an Industry and tie this in with the finance concept also. For example, Wes could select from the following materials for the paneling in the Dream Haven I:

5/32" Mahogany Paneling--4x7	@ $2.75
1/4 " Mahogany Paneling--4x7	@ $3.64
Vinyl Coated Mahogany Paneling--4x7	@ $4.70
1/4" Pine Chip Paneling -4x8	@ $2.40

   Some considerations in selecting one of these would pertain to structural, cost, and aesthetic qualities of the materials.)

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6. Activity #1

Selecting materials to economically satisfy product needs.

Activity #1

(Assign your students on an individual or small group basis to the selection of appropriate material(s) for given products. A list of potential products is given below. Have your students define the characteristics of the materials needed for a product. Then they will use reference sources or actual experiments with materials to select the appropriate material(s) for a product. Evaluation should be based on the clarity and precision of the definition of need, and the degree to which the material(s) selected exhibit appropriate cost, mechanical, aesthetic, and other service characteristics. Possible products are: Toys, tackling dummy, case for transistory radio, cone for ice cream cone, dress gloves, work gloves, baseball glove, shoes, notebook paper, ring, kichen counter top, notebook cover, football jersey, rain coat, lubricant for bicycles, protective coating for wood, fuel for a small burner to be used in the lab, and cleaning agents.)

C. Summary

1. What is the first step in determining what material will be required for a product? (Determine what needs the material will fulfill as a part of the product.)

2. What, then, is our next step? (Locate materials with these characteristics.)

3. Once we have located these materials, what do we do? (Select the one that fits the needs, gives the most value, and is available when needed.)

V. Evaluation

A. What materials characteristics are important for your bicycle seat?

B. What materials characteristics are important for your shirt?

C. What materials characteristics are important for the food you eat?

D. What materials characteristics are important in a basketball?

[illegible]
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor________________________ Date________________

Unit Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain________________
____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain________________
____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain________________
____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain________________
____

6. Which activity did you use?________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

[illegible]
[illegible] FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

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Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor______________________________ Date____________________

Unit Number_________ Lesson Number_________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain______________________

____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____

____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain______________________________

____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____

____

6. Which activity did you use?______________________________________

The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ______________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ______________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ______________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ______________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______________________

LEVEL I - American Industry
UNIT IV - Operating an Enterprise
Lesson 11 - Materials Have to be Processed (1 period)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

State that processes change materials into forms which have greater utility in satisfying needs and that the characteristics of materials influence the selection of the process.

II. Scope

Previous materials lessons have defined a number of characteristics of materials and some simple testing procedures. This lesson considers another characteristic, toolability, and provides a natural bridge to the ensuing processes lessons.

III. Resources

A. Instructional media

1. Tools and equipment: Scissors, tin snips, crosscut saw, hacksaw, oven, and ladle.

2. Ditto copies of the activity sheet.

3. Materials: Paper, cloth, aluminum foil, burlap, aluminum sheet, sheet metal, plastic film, 1/4" plastic sheet, 1/2" plywood, pine board, oak board, steel rod, aluminum bar stock, steel bar stock, plastic granules, solder, ice, butter, color crayon, chocolate, and oil.

B. Literature

1. Technical books on processing.

IV. Content Outline

A. Introduction

1. In the last three lessons, we have seen and tested various characteristics of materials.

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2. Another characteristic of materials is their toolability--the ease or difficulty of changing the form of a material to a new, more desired form.

B. Activity and content

1. In Pronto Pre-fabs, materials such as plywood, 2 x 4's, pipe, paint, and natural gas were purchased. In order to make a profit, Pronto had to use these materials to produce a house. Tools and machines were used to change the form of these materials into functional parts of the house or, in the case of the gas, to produce energy which was needed to produce the house.

2. Today you are going to experiment with cutting and melting various materials.

   a. Remember to use the systematic approach you learned in research as you perform the tests.

   b. Be sure to carefully record your results.

   c. Also, as you cut and melt different materials, compare what happens to each material and how the processes are alike. For example, compare the cutting process as you cut paper, plastic, and sheet metal.

3. Activity #1

   Cutting and melting materials.

   Activity #1

   a. (Set up stations with three different sets of materials as described below. Provide enough stations so that each student can engage in the activity.)

      (1) (Scissors and tin snips, paper, cloth, aluminum foil, burlap, aluminum sheet, sheet metal, and plastic film.)

      (2) (Crosscut saw and hacksaw, 1/4" plastic sheet, 1/2" plywood, pine board, oak board, steel rod, aluminum bar stock, and steel bar stock.)

(3) (Oven and ladle, plastic granules, solder, ice, aluminum, steel, wood, butter, parafin (wax), chocolate, and oil.)

b. (Hand out the activity sheets.)

c. (Instruct your students on the proper use of the tools and equipment, especially the saws and oven. Also, be sure they know the proper names for the tools.)

d. (Supervise the activity.)

C. Summary

1. (Discuss the results of the activity.)

a. (Compare the similarities between processing different materials.)

b. (Discuss why different sizes of the same material require different tools. For example aluminum foil, aluminum sheet, and aluminum bar stock.)

2. (Note how the amount of energy required to process different materials varies.)

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V. Evaluation

A. Place sets of materials at various stations and request your students to process them and compare the similarities between processes. For example, place samples of plywood, wood, plastic, aluminum, steel, and cement block at a station. Instruct your students on how to use each drill bit. Restrict their use of specific drill bits to certain materials--unless you have old bits you are not concerned about preserving. Ask your students to compare the drilling process between materials and to identify the reasons for the design of the specific drill bits.

Unit IV
Lesson 11
Activity #1

Name______________
Date______________

Directions: Follow the instructions given to you on this sheet and those given to you by your instructor.

I. SET I: Cut these materials as instructed and then answer the questions.

A. Cut the following materials with the scissors:

1. Paper.
2. Cloth.
3. Aluminum foil.
4. Burlap.
5. Plastic film.

B. Questions:

1. How was the cutting process similar for each material?
2. How much effort (energy) was required to cut each material?
3. Why is more effort required to cut each material?
4. Can you name any other materials that could be cut this way?

C. Cut the following materials with the tin snips:

1. Aluminum sheet.
2. Sheet metal.

D. Questions:

1. How was the cutting process similar for each material?
2. How much effort (energy) was required to cut each material?
3. Why is more effort required for some materials?
4. Can you name any other materials that could be cut this way?
5. How are the scissors and the tin snips alike?
6. How are they different?
7. Which tool allows you to apply the most force on the cutting edge? Why?

Directions: Move on to Station II.

II. SET II: Cut these materials as instructed and answer the questions

A. Cut the following materials with the crosscut saw:

1. 1/4" plastic sheet.
2. 1/2" plywood.
3. Pine board.
4. Oak board.

B. Questions:

1. How was the cutting process similar for each material?
2. Which material required the most energy to cut? Why?
3. Can you name any other materials that could be cut this way?

C. Cut the following materials with the hacksaw:

1. Steel rod.
2. Aluminum bar stock.
3. Steel bar stock.

D. Questions:

1. How was the cutting process similar for each material?
2. Which material required the most energy to cut? Why?
3. Can you name any other materials that could be cut this way?

4. How are the two saws alike?

5. How are they different? Why?

6. Which of the saws allows you to apply the most force on the cutting edge?

7. Which saw takes the largest bite?

8. How is the cutting process with a saw different from the cutting process with a scissors or tin snips?

9. Why would you use a saw instead of a scissors?

III. SET III: Cut these materials as instructed and answer the questions.

A. Melt the following materials:

1. Plastic granules.
2. Solder.
3. Ice.
4. Aluminum.
5. Steel.
6. Wood.
7. Butter.
8. Color crayon.
9. Chocolate (no testing allowed).
10. Oil.

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B. Questions:

1. Which materials were easiest to melt?

2. Were you able to melt all of the materials? List the ones you were not able to melt.

3. What happened to the oil when you heated it?

4. What materials could be melted without the oven?

5. Which materials require the most energy to melt?

6. How is the melting process different from the cutting process?

7. When would you melt materials rather than cut them?

LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Lesson 12 - Processes: A Systematic Series of Actions in Transforming Materials (1 period)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Define processes as the systematic series of actions involved in the transformation of materials in the production of goods and services. He will be able to identify the overt manipulative actions, the transformation(s), and the sequence followed in a simple process common to the American Industry laboratory. In addition, he will be able to identify processes used by local enterprises.

II. Scope

This lesson introduces the student to the processes concept. An emphasis is placed on developing the idea of the systematic series of actions involved in processes. Also, the student is made aware of the fact that processes are performed to produce goods and services. The student has a concrete experience with one process, observes two more performed by the teacher, and views a variety of processes presented on overhead transparencies.

III. Resources

A. Instructional media

1. 4" x 6" piece of pegboard.
2. Stove bolt and flat washers.
3. Bracket which can be bolted to the pegboard.
4. Tools needed for the processes selected to demonstrate the processes definition.
5. Materials to be processed.
6. SS: Processes and Manipulative Skills.

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B. Literature

1. Student booklet, Industry Today, pages 21-22.

2. Student booklet, Operating an Industry, pages 29-35.

3. Any technical books which describe specific processes.

IV. Content Outline

A. Introduction

1. (Place the definition of processes on your blackboard: Processes: The systematic series of actions involved in the transformation of materials in the production of goods and services. The attributes are underlined.)

2. In the previous lesson, we learned about materials and how important they are to industry. We also learned that materials usually have to be changed in shape, form, or characteristics in order to produce goods and services which satisfy customer needs. The actions used to transform materials are called processes. (Review the definition of processes which is on your blackboard.)

B. Activity and content

1. (Select two processes which can be used to illustrate the attributes of the processes definition. Use one which changes the shape and one which involves assembly.)

   a. (Perform the process which changes the shape of material. For example, cut off stock. Point out the actions used, the sequence of steps, and the transformation that takes place.)

   b. Now I am going to assemble two pieces of material with a fastener. Observe this to see if you can identify the actions used, the sequence of steps, and the transformation that takes place. Also, see if you can suggest a way to improve this process.

(1) (Assemble a bracket to a piece of pegboard with a stove bolt. Place a washer on each end. Use one or two extra steps to test your student's perception of this process.)

(2) (Discuss the actions, such as picking up the bolt, placing the washer on it, inserting it in the pegboard, etc.; sequence of actions; and the transformation. Emphasize the similarities between the two processes demonstrated. Note that each uses actions, a systematic sequence, and transforms materials. Also, ask your students how the assembly process could be improved.)

2. What processes did we use in our student enterprise in Unit I?

   a. What actions were involved?

   b. Was there a systematic sequence of steps?

   c. What transformation(s) took place?

   d. What happened when our processes were not properly done? (Bring out the fact that a poor product resulted which was not saleable, thus, reducing profits. Thus, processes relates to the finance concept.)

3. (Divide your class into groups of two. Assign them to perform a manipulative process--such as squaring an edge with a jack plane. Have each student try the process while the other observes.)

   a. (Assign the task to your class.)

   b. (Observe their work.)

   c. (After five to eight minutes of actual experience with the processes, call your students together for a demonstration.)

   d. (Demonstrate the proper actions and sequence. Point out the exact nature of the transformation.)

   e. (Have your students try the process again.)

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4. Summary and application of the knowledges acquired in the activity.

   a. (Discuss the process with your students. Identify the actions, sequence, and transformation.)

   b. (Note how this process can be used to produce a product in Pronto Pre-fabs. See page 33 in Operating an Industry.)

   c. What local enterprises use this process?

5. Now that you have acquired some actual experience with a process, I am going to show you a variety of processes. I want you to try to identify the transformation which takes place in each process. (Show SS: Processes and Manipulative Skills. This slide series is to be used as a discussion topic. There is no canned narration, however, a guide will accompany the series.)

SS: Processes and Manipulative Skills

C. Summary

1. (Review of the definition of processes.)

2. Name some of the processes used by local enterprises. (This is a check on your students' grasp of the concept definition. They should be able to correctly identify processes. If they cannot, you need to review the contents of this lesson. Encourage your students to consider the processes used by a variety of local enterprises.)

V. Evaluation

A. Perform a process for your class. Have your students identify the actions, the sequence of actions, the transformation which takes place, the material involved, and a possible good or service which might require this process in its presentation.

B. Which of the following is not a process?

1. Buttoning your shirt.
2. Moving lumber from the storeroom to the lab.
3. Mixing a juice concentrate with water to make a juice drink.
4. Sealing the school floors.

FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and it to Richard Gebhart, American Industry Project.
Check the appropriate statements and comment as requested. Note: In cases more than one statement may be checked.
If you need more room for comments, attach additional pages.

Instructor____________________ Date________________

Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain________________

6. Which activity did you use?________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ______________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ______________________________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ______________________________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ______________________________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______________________________

____

LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Lesson 13 - How is a Manipulative Skill Learned? (2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Identify and describe the steps and critical elements in learning a manipulative skill. In addition, he will be able to perform the manipulative skill used in the activity.

II. Scope

The previous lesson established the definition of processes and involved your students with a simple process. This lesson moves from this base to identify the basic manipulative skill learning process. Actual practice is provided in learning a manipulative skill and analyzing the results of this learning.

III. Resources

A. Instructional media

1. Tools and materials to demonstrate the process selected for the activity.

2. Duplicate enough copies of activity sheet #1 for this lesson and the next lesson.

3. SS: Processes and Manipulative Skills.

B. Literature

1. Reference materials for the process selected for the activity.

IV. Content Outline

A. Introduction

1. What is a process? (Discuss the definition.)

2. What do we have to learn in order to perform a process? (Actions involved in the process, the proper series of steps, and the transformation to be made in the material.)

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3. Often this involves learning a manipulative skill.

B. Activity and content

1. Each day we use a number of manipulative skills--from writing and drawing with a pencil to planing an edge of a board.

2. Today we are going to take a closer look at what is involved in learning a skill. (Use the processes the students performed in the previous lesson to demonstrate the following facets of skill learning.)

(SS: Processes and Manipulative Skills. Discussion guide will accompany slides.)

SS: Processes and Manipulative Skills

a. Input: Each manipulative skill has input in the form of directions, tools, and the materials to be processed. (Relate this to the process used in the previous lesson. Point out the directions, tools, and materials.)

b. Decisions: Performance of any manipulative skill requires that you make decisions. If nothing else, you must decide when to stop and start. More important, however, is the determination of the important characteristics of a process which will be used as the basis for your decisions. (Discuss the decisions involved in the process used as an example. Note such things as what tool to use, how to adjust it, the sequence of actions to use, how to measure the results, and when the process is complete. Also, point out the stimuli to which they should attend as they perform the process. Demonstrate these decisions in the actual performance of the process.)

c. Manipulative actions: Completion of a manipulative skill involves manipulative actions. These actions must be coordinated with each other and accurately done.

(Demonstrate the process and point out the manipulative actions, coordination, and precision. For example, show the hand and arm movements used and how each action flows into the next movement.)

d. Output: The result of any process is a transformation, in other words, a change in the original material. (Show the change which takes place through using the demonstration process.)

(1) How do we know when we have made the proper transformation? (Specifications, prints, model or directions tell us what the final output should be.)

(2) Correct, we have to have some information which tells us when the process is completed. In fact, this information on what the condition of the material will be when the process is completed is very helpful to us as we do the process. As we carry out the process we can check our results against what we want to achieve and note our progress.

e. Feedback: The results of our actions while doing the process help us to determine if we have the correct actions and proper sequence. One way to evaluate our actions is to see if the change in the material is progressing toward the specified end result in the correct manner. Also, we can observe our actions. All of the information obtained in this way is called feedback. (Demonstrate the feedback in your process.)

f. Motivation: Why are processes performed?

(Products are needed to satisfy needs.
Finance--processes: Sale of products produces profits.
Relationships--processes: Workers are paid to complete processes.
Research--processes: Completing processes can give new information.)

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3. We have observed several important aspects of learning a manipulative skill. Now I am going to demonstrate another skill and I want you to identify the basic parts of skill learning as they appear in this skill. (List the six parts on the board--input, decisions, manipulative actions, output, feedback, and motivation. Select a process whcih could be used by Pronto Pre-fabs. Some examples are mixing paint to desired color and intensity, bending conduit, cutting studs to length, finishing, and wiring a light fixture.)

    a. (Demonstrate the process.)

    b. (Identify the six facets of a manipulative skill as found in the process demonstrated. Do the process over if needed to illustrate these points.)

        (1) (Input: Specifications, drawings, as directions.)

        (2) (Decisions: Tools to use, amount of pressure to apply, adjustments needed, etc.)

        (3) (Manipulative actions: Identify these in your process.)

        (4) (Output: The nature of the material after it is processed.)

        (5) (Feedback: Information the processor gets back as he performs the process. Show how this helps to determine what further actions to take in completing the process.)

        (6) (Motivation: Show the need fulfilled.)

4. Now you are going to learn a manipulative skill. While doing this you will be able to apply what we have discussed in the first part of this lesson. (Assign a specific process. Some suggestions are nailing, attaching bolt and washer assembly to a pegboard, drilling holes, assembling and packaging products, collating papers, lacing leather, weaving, and drawing cubes. Demonstrate the proper use of the tools used.)

a. As you learn this skill you will find that your progress at first will be slow. This is natural. You will need some time to determine what to respond to as you learn the skill and what feedback is important.

b. Soon the individual actions in the process will start to fall in sequence. Your performance will show marked improvement. Try to establish a smooth and efficient sequence of actions.

c. Finally, you will reach a point at which your performance does not improve. Your performance level may be the best you are capable of achieving. However, you may be able to improve your performance by modifying your actions or the sequence of your actions.

d. Be sure to follow your activity sheet. (Instruct your students to place their names on the activity sheet #1. Also, tell them the name of the process to place in Section #1 on the activity sheet; give them the criteria for their output for Section #5; the time for each practice period for Section #6, A; the output they are to evaluate for Section #6, B; and the way they are to score this output for Section #6, D. Show them how to plot their performance on the graph. Select values for the y-axis that are appropriate. For examplo, if they are driving nails during three minute practice periods, have them count the number of nails correctly driven. They could also plot the number of incorrectly driven nails with a second line. Use a two minute rest period between practice periods during which they can assess and record their performance. Check to see how many nails you can drive during the practice period used. Use this as the high value on the graph is you feel you are fairly skilled at this process.)

e. (Have your students read Section #2 of the activity sheet. Then demonstrate the process to them. They should record the answers to the questions which are provided by your demonstration.)

f. (Students learn skill and complete activity sheet.)

g. (When they have completed their skill learning and the activity sheet, discuss the results.)

C. Summary and application

1. (Discuss the results of activity.)

a. (Note the progress of learning. You should find improvement, a variety of learning curves indicative of individual differences, and different proficiency levels.)

b. (Discuss how the input, decisions, manipulative actions, output, feedback, and motivation influence performance.)

c. (Discuss and point out how distributed practice produces better performance.)

2. (Discuss how this process could be used by Pronto Pre-fabs.)

3. What local industries use this process?

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V. Evaluation

A. Give your students a process and have them identify the input, decisions, manipulative actions, output, feedback, and motivation.

Unit IV
Lesson 13
Activity #1

Name________________________
Date________________________

LEARNING A MANIPULATIVE SKILL

Directions: Follow this activity sheet as you do the process assigned for this activity. Go through each step as given and answer the questions listed below. If you need help, see your teacher. Each section is identified by number. Use these numbers as your guide in referring back to specific sections.

1. Write the name of the process performed here________________________.

2. Input: What instruction and information were you given on this process?

   A. By your instructor (list):________________________

   ____

   ____.

   B. By an instruction or activity sheets (summarize):________________________

   ____

   ____.

   C. By drawings or plans (summarize):________________________

   ____.

   D. Could you get information from other sources? If so, list two:________

   ____.

   E. What are the characteristics of the material to be processed?________

   ____

   ____.

   F. How will the characteristics of the material influence the process you are going to perform?________________________

   ____.

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G. What tools could you use for the process?______________________________

____.

H. Why could you use these tools?____

____.

I. Do you have enough information to make your decisions and perform the actions necessary to do the process? If your answer is NO, ask your teacher for assistance. If your answer is YES, go on to the next section.

3. Decisions: Determine the tools, materials, and procedures you are going to use to complete the process.

A. What tool or tools are you going to use to complete the process?______

____.

B. Did the characteristics of the material have anything to do with selecting these tools? In what way?____________________________________

____.

C. Will the characteristics of the material affect the way you use these tools? How?____

____.

D. How much processing will you do?_______________________________________

____.

E. When will you do the process?____.

F. What safety precautions will you use?__________________________________

____.

G. What manipulative actions will you use?________________________________

____.

H. What is the correct sequence of these steps?____________________________

____

____.

I. In this activity you did not have to select a material. Often you would also have to make this decision.

J. Have you been able to make all the decisions necessary for completing the process? If your answer is YES, go on to Section #4. If your answer is NO, go back to Section #2, Input.

4. Manipulative Actions and Feedback:

A. You have listed the manipulative actions you will have to make to complete the process in Items G and H in Section #3. You should now try the process once or twice to check to see if you have correctly identified the actions and their sequence.

B. Try the process again. While doing the process, find out what the feedback is--what is the feel of the tool, output, sound, smell, etc. List them below.

5. Output: What should the material look like when you are done? Use the space below to describe or sketch the final output. Consider the accuracy required, the number of items needed, and the overall quality of the items.

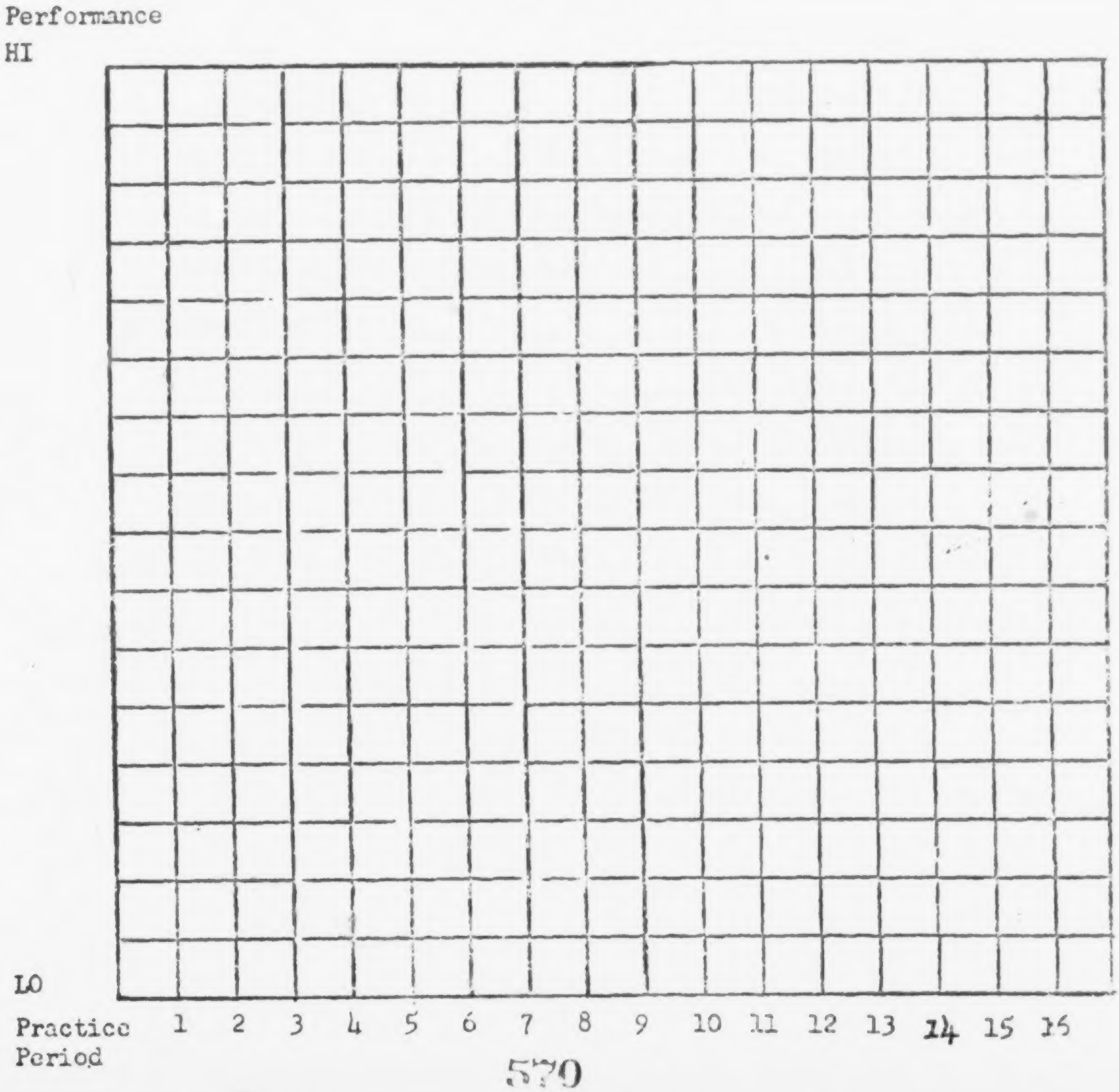
6. Processing: You are now ready to complete your learning of the manipulative process listed in Section #1. Follow the steps and directions you have recorded in Sections #2 and #5. After short time periods, you are to record the results of your performance. Your teacher will tell you the length of the time period and what to record. (After you have become familiar with learning motor skills, you will probably be able to determine this information yourself.)

A. Time for each practice period________________________________.

B. Output to be evaluated________________________________.

C. Scoring system for the output________________________________.

D. Record your performance for each practice period on the graph below. Connect the points on the graph as you go.



6 7. Analysis of Your Minipulative Learning:

A. Your manipulative actions during the first trials will probably be rather awkward. Do not become discouraged. This is normal. Concentrate on using the correct manipulative actions and the proper sequence to use them. While you do the process find out what events tell you whether you are doing it correctly. Keep practicing, but allow yourself some "rest periods" between practice periods. During these "rest periods" analyze the results of your manipulative actions.

B. After you have completed several practice periods, your performance will probably level out or start to level out. This will be indicated on your graph when the line that shows your performance becomes horizontal. Further practice does not improve your performance. This may mean that you have learned this skill to the best of your ability. Or, it may mean that you are performing as well as you can with the procedures you are using. Thus, when your performance stops improving you should check to see if you can improve your manipulative actions or the order you perform them in. Here are some questions to ask yourself.

(1) Can I work faster?

(2) Can I organize my manipulative actions into a more efficient sequence?

(3) Can I reorganize my work station?

(4) Can I use both hands instead of one?

(5) Can I sequence the use of my hands to make more efficient use of their capabilities?

(6) Can I use a more efficient tool to perform the process?

(7) Do I need more instruction on how to perform the process? If YES, see your instructor.

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ______________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ______________________________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ______________________________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ______________________________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______________________________

____

[illegible]
[illegible]

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and return it to Richard Gebhart, American Industry Project.
Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.
If you need more room for comments, attach additional pages.

Instructor____________________________ Date____________________

Unit Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)______

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________

____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________

____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________

____

6. Which activity did you use?____________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

____

(Be sure to fill out the items on the reverse side.)

LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Lesson 14 - A Skill Is A Skill Is A Skill (2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

A. Recognize and state that learning a manipulative skill involves a systematic process which applies in general to the learning of all manipulative skills.

B. Apply this process to the learning of a new skill.

II. Scope

In the previous lesson, your students encountered a manipulative skills learning paradigm and used this to acquire a specific skill. In this lesson, they will use the same procedure to learn a new and quite different manipulative skill. Through this experience your students should broaden their concept of skill learning and see the commonalities in skills learning.

III. Resources

A. Instructional media

1. Duplicated copies of activity sheet #1 for the last lesson.

2. Completed activity sheets for the previous lesson.

3. OT: Components of Manipulative Skill Learning.

B. Literature

IV. Content Outline

A. (Assign your students to learn another process. Select a process which involves vastly different tools, procedures, and materials in comparison with the process learned in the previous lesson. Use the activity sheet in the same way; however, direct your students to compare the learning of this process with the learning of the first process.)

B. (Complete the skill learning.)

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C. (Discuss the results of the skill learning.)

1. (Review the sections of the activity sheet. OT: Components of Manipulative Skill Learning may be used as a discussion guide.)

2. (Discuss the nature of their learning.)

3. (Compare the similarity between learning the two manipulative skills. Develop the idea that manipulative skills can be effectively learned in this manner.)

4. (Select a third, and different manipulative skill, and ask your class how they would undertake to learn this skill. Use their answers to ascertain if they can apply the skills learning paradigm to new skills.)

5. (If feasible, assign your students to learn a third skill. This could be a homework assignment. Have them use the activity sheet as a guide.)

OT: Components of Manipulative Skill Learning

V. Evaluation

A. Essay item.

How would you go about learning how to (list a process new to your class here)? List the steps below and describe each step as completely as you can.

[illegible]
[illegible]

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor________________________________ Date____________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)_______

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________

6. Which activity did you use?____________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson. (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Lesson 15 - What Are the Actions Involved in Processes? (1 period)

Stout State University
Summer, 1967

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I. Objectives: At the conclusion of this lesson the student should be able to:

List the three general actions used in processes, identify common examples of these actions, and state that efficient execution of processes require the proper coordination of these actions.

II. Scope

This lesson identifies three general categories of actions employed in processing materials. These categories are energy actions, control actions, and decisions. The student is also introduced to the need to effectively coordinate these actions in processing.

III. Resources

A. Instructional media

1. SS: Processes and Manipulative Skills.

2. Tools and materials required to demonstrate the process used in IV, B, 2.

B. Literature

1. Technical literature on processes.

IV. Content Outline

A. Introduction

1. In the last three lessons we have discussed processes--what they are and how they are learned.

2. (Have your students define processes. Write the definition on the blackboard and underline actions.)

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B. Activity and content

1. We are going to study three general actions which take place in processes. (Write these on your blackboard.)

   a. Energy actions. (Energy here has the same meaning as the A. I. energy concept.)

   b. Control actions.

   c. Decisions.

2. Now I am going to demonstrate a process we learned before. I want you to identify the energy actions, control actions, and the decisions involved. (Demonstrate the process and record your students' responses on the blackboard.)

3. In performing a process, it is very important that these actions are done correctly, completed in proper order, and that one action flows smoothly into the next action. (Demonstrate this to your class. Be careful to point out how these actions are smoothly integrated into a process and how decisions are made at various points. Also, note that timely and correct decisions lead to better control and energy actions.)

4. How many specific steps or movements can you list for each of these general actions? (List on the blackboard. NOTE: This applies not only to manipulative skills but to processes in general.)

   a. (Energy actions: Twist, push, pull, rotate, lift, squeeze, strike, alter movement, heat, cool, charge, light, burn, etc.)

   b. (Control actions: Aim, guide, hold position, control, regulate, contain, etc.)

   c. Decisions: Select, change, sequence, judge, predict, etc.)

5. (Project SS: Processes and Manipulative Skills which depict samples of each of these actions. See discussion guide accompanying slide series.)

6. (Assign your students to perform a process and have them identify the actions.)

C. Summary

1. What are the three actions in processes?

2. What does energy mean?

3. How can we coordinate these actions to produce an efficient process?

SS: Processes and Manipulative Skills

V. Evaluation

A. Perform a process for your class. Ask your students to identify the energy actions, control actions, and decisions involved.

B. Present various actions and have your students classify them.

LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Lesson 16 - The Interaction of Tools, Skills, and Materials
(2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

State that tools, skills, and materials interact in completing a process. Also, he will be able to identify simple interactions which involve these three components.

II. Scope

This lesson introduces the student to a systems view of processing. Three components of this system; tools, skills, and materials, are presented to the student.

III. Resources

A. Instructional media

1. Corner edger (narrow paint roller).
2. Water base paint.
3. Paper cups.
4. 2" paint brush.
5. Hardboard panels suitable for painting.
6. 12" long pieces of pine and oak.
7. Jack planes.
8. Hand drills.
9. 1/4" drills.
10. Drill press.
11. Pieces of steel.
12. Materials and tools needed for process #4 in the student activity sheet. (Assigned by the instructor.)
13. Copies of the activity sheet.

B. Literature

1. Technical literature on the processes used.

IV. Content Outline

A. Introduction

1. In previous processes lessons, we have found that the characteristics of the material to be processed influence our decision on the type of tools to use and the amount of energy required to perform the process. (Cite some examples from your student activities in these lessons.)

2. Prior to this lesson we have observed these things in a rather haphazard way. Now, we are going to study how the skill of the processor, the tools he uses, and the materials he processes influence each other and the end product. I want you to observe and study these three elements and how they work together in processing.

   a. For example, if I want to transform this sheet of paper into 3" x 5" cards, I can process it in one of several ways. Observe how the skills and tools change with each process. (Tear one sheet into 3" x 5" pieces--use a rule to measure the size. Cut a second sheet with a scissors--measure the size. Cut a third sheet with a paper cutter. Contrast each method on the skills employed, the tools used, and the nature of the end product. Point out how these interact.)

B. Activity and content

1. (Assign the activity sheet to your class.)

   a. (Go through the directions and the first three processes with your class. Point out the work stations and safety rules. Demonstrate the processes as required.)

b. (Assign the process and methods for process #4. Select a process which is quite different from the other three processes in the activity sheet. Then select two methods for completing this process.)

2. (Supervise your students as they complete the activity sheet. Watch for proper use of the tools and the use of safe procedures.)

3. (Discuss the results of the activity. Emphasize the following points. Use examples from the activity.)

    a. (The material to be processed dictates, to some extent at least, the tools and skills required in processing it.)

    b. (The tools used influence the skills required to perform a process and the quality of the output.)

    c. (The skills of the processor will influence his selection of tools and procedures to utilize in processing a given material.)

4. (Discuss why Pronto Pre-fabs might purchase equipment to assist in completing some of the following processes. Be sure to include the finance and property concepts in your decisions.)

    a. (Power or radial saw for cutting lumber.)

    b. (Air compressor for inflating truck tires.)

    c. (Spray equipment for priming and finishing its materials.)

C. Summary

1. How do the characteristics of the material to be processed affect the skills and tools used in completing the process?

2. How does the skill of the operator influence the tools used in completing a process?

3. How can we adjust for the lack of skill of the processor? (Change materials, use jigs and fixtures, automate the process, use equipment he knows how to operate.)

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4. In some instances, might an enterprise have to select materials which are less suitable for its product because of the skills of its employees and the tools it has?

5. (Summarize the main points of the interaction of skills, tools, and materials.)

6. (Ask your students to apply these ideas to local enterprise. For example, why does not the local service station do dynamic wheel balancing?)

V. Evaluation

A. Object test.

1. Set up two procedures for completing the same process. Ask your students to compare the skills and tools used in each method. Select a process which is not too complex.

2. Select a set of three or four materials and ask your students to describe how to perform a specific process on these materials. Select a process they are familiar with or can obtain information on. This could be a homework problem.

f3

Unit IV
Lesson 16
Activity #1

Name________________________
Date________________________

Directions: Complete the tasks described below and answer the questions. You will find your tools and materials at the station with the same number or the process number given below. Work safely!

Process #1: Planing

1. Set the plane to take a shallow cut. Plane an edge of the pine board and then plane an edge of the oak board.

   A. Which wood took the most energy to plane?________________________

   B. On which board did you get the smoothest edge?________________________

   C. Were you more skilled when you planed the second material?____________

   D. How did the differences in materials influence the process?____________

   ____

2. Using the shallow setting, plane an edge of the pine board. Now, set the plane to take a very deep cut. Plane the other edge of the pine board.

   A. Which setting required the most energy?________________________

   B. Which setting gave the smoothest cut?________________________

   C. Did your level of skill change between the time you made the cuts with the two different settings?________________________

   D. What caused the difference in the quality of the cuts?____________

   ____

Process #2: Drilling

1. Use the hand drill to drill a one-quarter inch hole straight through the piece of wood and the piece of steel. Drill each piece separately.

   A. Which material required the most energy for completing this process?

   ____

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B. In which material did you make the most accurate hole? Why?

C. What problems did you have in drilling straight through each material?

2. Use the drill press to drill a one-quarter inch hole straight through the same materials. Caution: Wear safety glasses, hold the piece of steel with a clamp or a pliers, and follow the safety rules given by your instructor.

A. Which material required the most energy to drill?

B. Did you have to use more energy to drill one piece than the other?

C. Where did the extra energy come from?

D. Were the holes straight? Why?

E. What did you have to do to drill the holes with the drill press?

F. How was this different from drilling the holes by hand?

G. Are different skills involved in doing the same process when different tools are used in doing it?

Process #3: Painting

1. Dip the paint brush one-third of the length of the bristles into the paint. Brush the paint onto the panel.

2. Roll the paint roller into the paint in the tray. Roll out the excess paint. Then, roll the paint on the panel just below or above where you brushed on the paint.

A. Which tool gave the best application?

B. Which is faster? ____________________

C. Which tool requires the most skill to do a good job? ____________________

4. Take a paper cup of paint and mix it with two cups of water. Next, apply this new material with the brush and the roller.

A. What problems did you have applying this paint? ____________________

____

B. Did you get as good an application with either of these tools as you did with the original paint? ____________________

____

C. What influence do the tools and the consistency of the paint have on this process? ____________________

____

____

5. Before you leave this station wipe the brush and the roller to remove the excess paint. Place the thin paint in the can marked "waste paint."

Process #4: ____________________

1. Method A: ____________________

A. Tools: ____________________

B. Skills: ____________________

C. Procedure: ____________________

D. Material(s): ____________________

E. How do these affect each other? ____________________

____

____

2. Method B: ____________________

   A. Tools: ____________________

   B. Skills: ____________________

   C. Procedure: ____________________

   D. Material(s): ____________________

   E. How do these affect each other? ____________________

3. Comparison of the two methods, A and B.

   A. Which method requires the most energy? ____________________

   B. Which method requires the most manipulative skill? Why? ____________________

   C. What manipulative skills do the tools used in Method B replace? ____________________

   D. How do the characteristics of the material influence the selection of tools and the skills required? ____________________

LEVEL [illegible]
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor______________________________ Date____________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________
____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________
____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________
____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________
____

6. Which activity did you use?____________________

The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ______________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ______________________________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ______________________________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ______________________________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______________________________

____

LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Lesson 17 - How Can You Learn A Skill By Yourself?

Stout State University
Summer, 1967

The objective of this lesson is to introduce the student to self-instruction in the learning of manipulative skills. At the present time, this lesson has not been completed.

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor________________________________ Date____________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)_______

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain______________________________

____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________

____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain______________________________

____

6. Which activity did you use?______________________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Lesson 18 - Introduction to Production (1 period)

Stout State University
Summer, 1967

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I. Objectives: At the conclusion of this lesson the student should be able to:

Define production and give sample examples of production types, systems, planning, fabrication, and control.

(NOTE: An overall objective of this and all production concept lessons is to prepare the students for producing a product. This product may be produced in this unit or Unit VII.

II. Scope

Enterprises throughout America use the same basic knowledges in producing their goods or services. In this lesson these basic knowledges will be studied in a logical sequence and some application of each will be made.

III. Resources

A. Instructional media

1. SS: An Introduction to Production.

2. First level film catalog.

B. Literature

1. Student booklet, Operating An Enterprise, skim pages 43-68.

2. Resource books: 11.1/1-7; 11.3.1/1-4; 11.3.6/1-6; 11.3.9/1-7; and 11.3.9.4/1-3.

3. Automation in Practice, S. E. Rusinoff, 1957, The American Technical Society, Chicago, Illinois.

4. Business Management, L. L. Bethel, 1957, McGraw-Hill, New York.

5. Business Management, J. A. Shubin, 1964, Barnes and Noble, Inc., New York.

6. The Evolution of Mass Production, 1958, Ford Motor Company, Dearborn, Michigan.

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7. Factory (Periodical), McGraw-Hill Publications, Inc., New York.

8. Industrial Organization and Management, L. L. Bethel, 1962, McGraw-Hill, New York.

9. The Management of Production, W. Voris, 1960, The Roland Press Company, New York.

10. Manufacturing Management, F. H. Moore, 1961, Richard D. Irwin, Inc., Homewood, Illinois.

11. Modern Approaches to Production Planning and Control, R. A. Pritzker and R. A. Gring, 1960, American Management Association, Inc., New York.

12. Organization for Production, Revised Edition, Richard D. Irwin, Inc., Homewood, Illinois.

13. Principles and Design of Production Control Systems, Schule, Westerman, and Wimmert, 1960, Prentice-Hall, Inc., Englewood Cliffs, New Jersey.

14. Production Control, F. H. Moore, McGraw-Hill, New York.

IV. Content Outline

A. Introduction

Later we are going to apply the information gained in this unit. We are going to produce a product according to the methods outlined in this and future production lessons. However, we must start by learning what production is and what is involved in the production of goods and services.

B. Activity and content

1. When a company is involved in the production of goods or services, for a profit, many decisions become vital to that company. Decisions such as:

    a. What shall we produce?

    b. How long will it take to produce it?

Review SS: An Introduction to Production or preview the film selected by the teacher.

c. How much material is needed?

d. What equipment?

e. What processes? Are the processes expensive?

f. Do we have the personnel to do this job? If not, where can we get them?

g. Can we produce the quality and quantity required?

h. What will our sale price be? Will this price meet competition?

i. Can we locate supplies of material? How much material? At what price?

2. These questions represent just a few of the problems involved in production and its related areas of industry.

3. Today we are going to (teacher should have elected to show the A. I. slide series, An Introduction to Production, or a film from the first level film catalog).

4. Today, and in future lessons, we will study the following areas of production. Try to identify them while viewing the (film or slide series).

   a. Production types: Is the product developed while moving on a production line, in a fixed position, such as a ship, or by moving from one department to another for additional work?

   b. Production system: What system was used? Was it automated, or did the company custom make their products? Were they involved in producing in a large volume or small quantities?

   c. Production planning: Was a floor plan used? How about a production schedule? Was any type of network used in planning? What plans were made to handle "work stop" problems?

   d. Production fabrication: Did the company make and assemble the product? How did they make it? What tools were used? What type of equipment was needed? Were jigs and fixtures used?

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e. Production control: What documents govern the size and quality of the product? How did they control their inventory to assure an adequate supply of material?

5. These are some of the questions we must be able to answer in order that efficient production may take place.

6. (Show the slide series now.)

Show lesson SS or film.

C. Conclusion

1. To conclude this lesson refer to the questions in IV, B again. This time ask for specific examples from the film or SS and from the student booklet.

2. In your own words, define production. (This should be a main point in this lesson. Production: Those activities of an enterprise which are primarily concerned with the generation of specified goods or services. The attributes are most important.)

The attributes of production.

3. What sequence is followed in production? (Plan, considering the type and system, and fabricate with control.)

V. Evaluation

A. In your own words, define production:______________________________

____

____

B. Match the following:

_____ 1. The kind or nature of production used by enterprise.
_____ 2. The preparing for production.
_____ 3. The common methods used in producing goods or services.
_____ 4. Making or assembling a product.
_____ 5. Regulation of production.

a. Resources
b. Fabrication
c. Intermittent
d. Control
e. Planning
f. Systems
g. Line
h. Types

C. Identify some basic steps that are essential to production of goods or services:____

____

____

____

[illegible]
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

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Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor____________________ Date________________

Unit Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain________________

____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain________________

____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain________________

____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain________________

____

6. Which activity did you use?________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ______________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ______________________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ______________________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ______________________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______________________________

LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Lesson 19 - Production Types (1 period)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Define the basic types of production (line, departmental, and fixed position), cite examples of each, and show how they might be used harmoniously in production or as individual types.

II. Scope

The type of production is often dictated by the product being made. In this lesson, we are concerned with the basic types and how these production types are used in industry.

III. Resources

A. Instructional media

1. OT; Production Types.

2. First level film catalog.

B. Literature

1. See Lesson 18 - Introduction to Production which is part of this unit.

IV. Content Outline

A. Introduction

There are three basic types of production.

1. The line type where operations are placed adjacent to each other for production. Examples would be assembling of an automobile, production of canned vegetables, or making of fountain and ball point pens. Can you think of others? (Project OT: Production Types (Part A).)

OT: Production Types (Part A)

2. Departmental type of production involves grouping of processes of the same kind for production purposes. Examples would be castings being made in foundry department, machining in a machinist group, welding in a specific department, or inspecting in a quality control department. Have we used this type? (Project OT: Production Types (Part B).)

OT: Production Types (Part B)

3. Fixed position is a type of production where the men and equipment are moved to a selected site where production will take place. Examples would be most buildings, ships, and missile sites. What other products would be made in a fixed position? (Project OT: Production Types (Part C).)

OT: Production Types (Part C)

B. Activity and content

1. Can you identify examples of each production type? (Line, departmental, and fixed position.)

2. Did the production of the product utilize more than one type of production? If not, can you identify some that did?

3. (The teacher may decide to use the form on the following page in class today, or have it completed as an outside assignment.)

See form titled Types of Production and Their Applications.

4. (If the above activity is not used the teacher should continue the discussion about the types of production by relating past class production to the types being studied today.)

5. (Another activity could be to select a product of a local enterprise producing a product and have each class member identify the steps and/or parts necessary to produce it. Then have each student identify the type of production that would work best with each part by placing a code letter before that step.

   This should help identify ways in which your lab could be laid-out for production, but should help the students to understand why one type of production is not the only type that is feasable for producing a particular product.)

Name____________________
Date____________________

TYPES OF PRODUCTION AND THEIR APPLICATIONS

1. Define the following production types?

   A. Line production:

   B. Departmental production:

   C. Fixed position production:

2. Identify examples of each production type and state where you have seen or read about their use. Also cite examples where a combination of two or more types were used to produce a product.

3. What type or types of production will we use in producing our next product?

C. Conclusion

1. Today we have studied the three basic types of production--line, departmental, and fixed position. (Briefly define each.)

If visuals are used, show them again or review.

2. We have related these to our laboratory products and a local enterprise. (Cite the examples.)

3. Soon we will be required to apply what was learned in order that we can prepare for, produce, and sell a product.

4. Tomorrow we will study four basic systems of production. Each of you should know what a system is before coming to class. You should try to identify some of the systems also.

V. Evaluation

A. Match the following:

_____ 1. Production operations placed next to each other for the purpose of producing goods or services.

_____ 2. Grouping of similar processes in a specific area for production purposes.

_____ 3. The moving of men and equipment to a particular site for production purposes.

a. Layout
b. Fixed position
c. Line
d. Scheduled
e. Departmental

B. Cite examples of products for each of the three basic production types:

1. ____

____

2. ____

____

3. ____

____

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor________________________________ Date______________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain______________________

____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____

____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________________

____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________________________

____

6. Which activity did you use?_____________________________________

The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ______________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ______________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ______________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ______________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______________________

____

LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Lesson 20 - Producing In a Systematic Way (2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Define, cite uses for, and make simple applications of the following production systems:

A. Automated.

B. Continuous.

C. Intermittent.

D. Custom.

II. Scope

This lesson will be devoted to a brief study of four basic systems used in producing. In making any product, a system or combination of the four basic systems is used. Let's attempt to cite the system and then provide meaningful examples for the students.

III. Resources

A. Instructional media

1. First level film catalog.

B. Literature

1. Student booklet, Operating An Enterprise, pages 56-59.

2. Resource books: 11.1/1-11.1/7; 11.3.1/1-11.3.1/4; 11.3.6/1-11.3.6/6; 11.3.9.3/1-11.3.9.3/7; and 11.3.9.4/1-11.3.9.4/3.

3. Business Management, John Shubin, 1962, Barnes and Noble, New York.

4. Industrial Organization and Management, Bethel, Atwater, Smith, and Stackman, 1962, McGraw-Hill, New York.

5. Modern Approaches to Production Planning and Controls, Robert A. Pritzker and Robert A. Gring, 1960, American Management Association, Inc., New York.

6. Principles and Design of Production Control Systems, Schule, Westerman, and Wimmert, 1960, Prentice-Hall, Inc., Englewood Cliffs, New Jersey.

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IV. Content Outline

A. Introduction

1. In our student booklet, Operating an Enterprise, pages 56-59, we read about the use of some basic production systems. What systems were referred to? (The continuous, intermittent, and custom were discussed and defined.)

Make this assignment one or two days prior.

2. One other system was not brought out. Can you identify another system? (Attempt to bring out the automated system.)

B. Activity and content

1. Considering the types of production we studied recently (line, departmental, and fixed position) let's apply this to our planning and selecting of a system or combination of systems for production.

2. In manufacturing our product (identify it if selection has been made) what system(s) could we use? (Automated, continuous, intermittent, custom, etc.)

3. Will we use a custom system of production where only a few products are to be made? (Discuss custom systems and products of custom systems.)

4. Will we use an intermittent system of production? This is where process layouts are used for producing a small volume of different goods or services.

5. Will we use a continuous system which also uses process layouts, but for producing large volumes of goods or services? How many products do we plan to produce? Will there be 50 or more?

6. Will we set up an automated system where mechanical energy is used in place of man's perceptive senses and muscles, with a feedback control system, for a continuous flow of production? Sounds elaborate, doesn't it? Could we use a simple form of automation?

7. Let's produce a simple puzzle, then discuss the systems use in production.

8. (Class could be broken into groups each producing using a different system. If time permits, make a puzzle for each class member.)

NOTE: Semester classes may not find time for these activities.

9. Activity #1

The "T" Puzzle.

Activity #1

(An intermittent production system could be demonstrated by using this activity.)

10. Activity #2

The Square Puzzle.

Activity #2

(This activity could be used to demonstrate a continuous or even a simple automated system.)

11. Activity #3

A Magic Belt Holder.

Activity #3

(This could demonstrate custom or intermittent production systems.)

C. Conclusion

1. We have studied the basic systems used in production. Have you heard of these before? Where?

2. Will we be using these systems for producing other products?

3. Have you heard them referred to by different names? What names? Where did you hear of the systems?

4. What uses can you identify for the following systems? What products might be produced using these systems or combination of them?

   a. Automated.

   b. Continuous.

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c. Intermittent.

d. Custom.

5. We have studied the types and systems used in production. Tomorrow we will see how to plan for production.

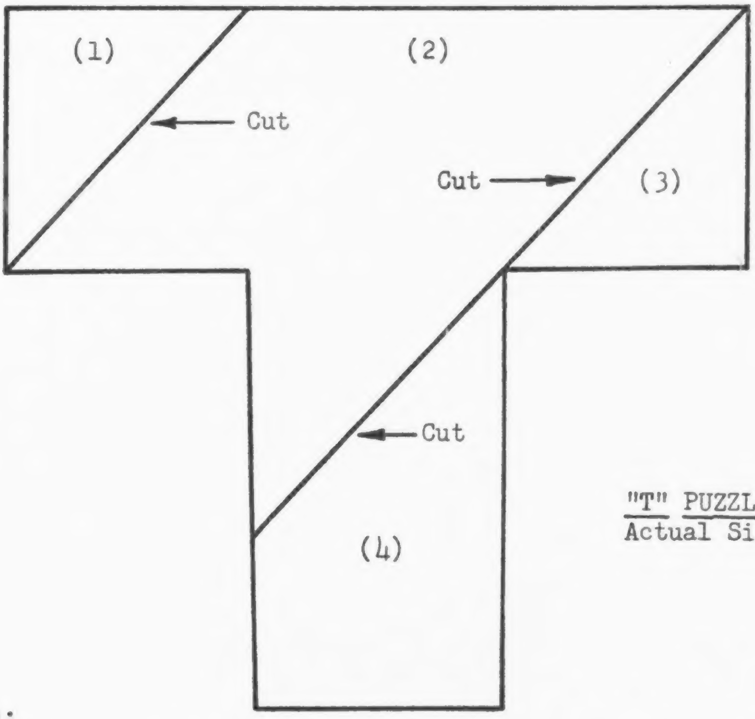
V. Evaluation

(See questions in this lesson and in activity sheets.)

Unit IV
Lesson 20
Activity #1

THE "T" PUZZLE

1. Material required: Stock 1/2" x 4 1/4" x 4 1/2" of masonite or wood is suggested.
2. Finish: You may paint or finish natural.
3. Use the pattern below which is actual size.
4. Let your friends attempt to make a "T" from the pieces.



"T" PUZZLE
Actual Size

Questions:

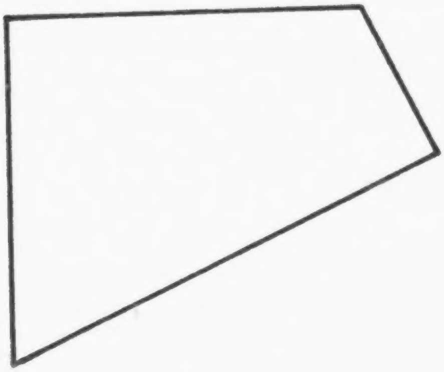
1. What production system(s) were demonstrated in making this puzzle? ______________________________

2. How would you change the production procedures you followed? __________ ______________________________

Unit IV
Lesson 20
Activity #2

THE SQUARE PUZZLE

1. Make sets of four (4) pieces of the pattern below.
2. The pattern is actual size.
3. Try to assemble a square from them.



SQUARE PUZZLE
Actual Size

Questions:

1. What production system(s) were demonstrated in making this puzzle? ______________________________

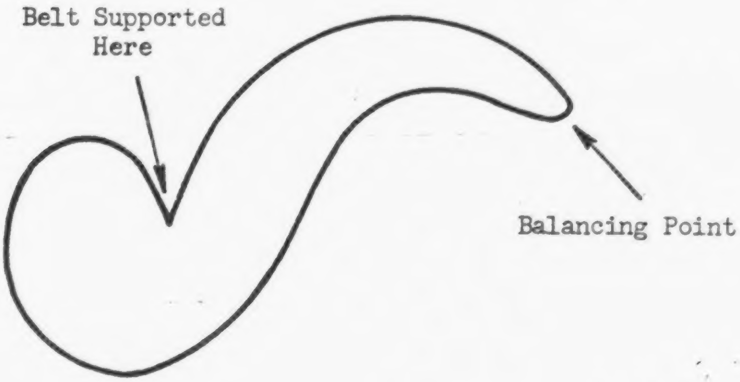
2. What was most difficult in making these puzzles? ______________________________

3. How did you solve the problem? ______________________________

Unit IV
Lesson 20
Activity #3

A MAGIC BELT HOLDER

1. Material required: Stock 1/4" x 2 1/4" x 3 1/2" of masonite or wood is suggested.
2. Finish: Paint or natural.
3. The drawing below is actual size.
4. Show your friends how to balance your belt on this magic holder.



MAGIC BELT HOLDER
Actual Size

Questions:

1. What production system(s) did you use in producing the belt holder?

____

2. Is there another system that would be better? (Yes or no.) Which system?____

____

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor______________________________ Date____________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________
____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________
____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________
____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________
____

6. Which activity did you use?____________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Lesson 21 - Production Planning (2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Prepare a simple production plan which includes the production flow process, the production order and scheduling, and the plans for expediting production problems.

II. Scope

Production takes place only after plans have been made. Plans are based upon information gathered concerning the particular good or service to be produced. However, the plans should be flexible and subject to change in order to bring about more efficient production. (NOTE: This lesson requires detailed planning by the teacher.)

III. Resources

A. Instructional media

1. First level film catalog.

2. Overhead projector and clear acetate.

B. Literature

1. Student booklet, Operating An Enterprise, pages 43-56.

IV. Content Outline

A. Introduction

1. If time permits, we will plan for and produce a product (identify it) during the next two class periods.

2. (The "T" Puzzle activity used in Lesson 20 of this unit will be used as an example. However, the other activities in Lesson 20, or activities in Unit I could also be used. The amount of time available will dictate the activity selected.)

3. Production planning starts after the item to be produced has been designed and drawn. In our laboratory we will attempt to make the necessary plans for production based upon a previously selected product.

B. Activity and content

1. Industry uses many different charts, forms, sketches, and drawing to plan for production. However, let's keep in mind the aim of these various items to detail the plans for production.

2. Our production plans will be as follows: (The teacher may use the simple plans of this lesson, Unit I, or the plans attached. These production procedures will be simplified considering the level of the student.)

3. Using the "T" Puzzle as an example, we will complete a production order and production flow chart. I will provide the "how to" in a minute.

4. Using the information on activity sheet #1, "T" Puzzle, prepare a production order and schedule sheet.

   (Trace the generation of these documents to the original reason for their being. For example, the company received an order, sales order, or a forecasted need for a product. Next engineering documents were available or were developed. Then the manufacturing group was asked to make the item. Next the production order, etc.)

Reference:
Activity #1
and Production
Order and
Schedule Sheet.

5. (Distribute activity sheet #1 and the Production Order and Schedule Sheet. Show the students how to complete the Production Order and Schedule Sheet, then have them attempt to complete one for the "T" Puzzle. Roam about the room and provide help for the students.)

6. Next we will prepare a production flow chart. It will aid in our organizing for production.

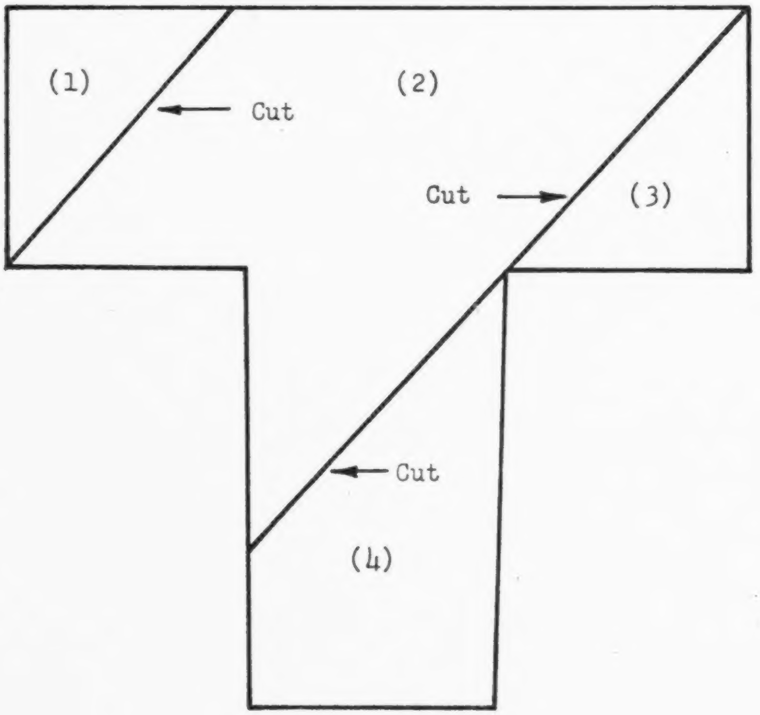
7. (Using clear acetate on the overhead projector, or on the chalkboard, prepare a production flow chart. The symbols on the following page may be used in preparing charts of this type.)

Unit IV
Lesson 21
Activity #1

"T" Puzzle

Make a "T" Puzzle from masonite or wood as shown below.

The part numbers are on each part. You are going to mass produce these puzzles. The model number is 133-4-T. You have an order to make 127 of these and they must be completed five days from today.



Material: 1/4" x 4 1/4" x 4 1/4"

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PRODUCTION ORDER AND SCHEDULE SHEET

Date______________ Order No.______________

Item____ Drawing No.____________

No. Required_______________________ Date Required_____________________________

Seq. of Operation	Operation No.	Operation Description	Work Station	Set-up Time	Prod. Time	Scheduled Com. Date
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						

Approved By___________________________

PRODUCTION FLOW CHART:
Symbols and Definitions

○ = Operation: Work performed in making a product, usually done at one work station.

⇨ = Transportation: The moving of an item from one place to another.

D = Delay: Temporary storage.

▽ = Storage: A waiting period or a time that the item is at rest.

□ = Inspection: The verification of product specification (dimensions, operational characteristics, etc.)

8. There are several production systems used in industry. The system used in this course contains the basic activities and plans necessary for production. Let's study a simple example of a production flow chart. After the chart has been tried under working conditions the sequence and time allotment may have to be changed. Don't expect your first chart to be accurate, it takes time and experience to chart the flow of a product. Now, let's give it a try.

Study this chart in detail before attempting to present this lesson.

9. (Give the students the sample production chart and the symbols. Ask them to make a production flow chart for the "T" Puzzle.)

10. (As the students are preparing their production flow charts, check their work and answer questions about it. Remember that the chart is to identify those basic steps involved in producing a product.)

11. (A production planning film would fit here providing time is available.)

C. Conclusion

1. Production planning has one basic goal--to establish the best plan possible for efficient production. Adequate planning today will save time, effort, and money tomorrow.

2. (Summarize this lesson by asking the following questions:)

   a. Where did the production order really start? (With a purchase order or a forecast of product needs.)

   b. Did we correct inaccurate assumptions made in our plans? How?

   c. In our student reading, how did Wes plan for production? What were his basic considerations in planning?

   d. What is expedite? Have we performed this task or have we planned for it?

3. In our next lesson we will discuss product fabrication and control. We will relate fabrication and control to production planning.

PRODUCTION FLOW CHART
FOR

FABRICATING CUTTING BOARDS

Time (Min)	Symbol	Description
	▽	Material in storage
2	⇩	Remove stock from store room
4	□	Check for quality and type
1	⇩	Move to work station for cutting
10	○	Cut to length
1	⇩	Move to rip saw
10	○	Rip to proper width
2	⇩	Move to inspection area #1
5	□	Inspect for size and flows
2	⇩	Move to glue station
10	○	Assemble and glue
180	D	Delay for drying of glue
5	□	Inspect glue joints and straightness
2	⇩	Move to next work station for smoothing
5	○	Smooth all four sides and round all sharp edges
2	⇩	Move to final inspection area
5	□	Final inspection for size, quality, appearance, etc., as stated in specifications and drawings.

'3

Time (Min)	Symbol	Description
2	⇩	Move to packaging area
3	○	Package
	▽	Store
249	Total Min.	

TIME SUMMARY		
○	= Operations	38 Min.
D	= Delay	180 Min.
⇨	= Transportation	12 Min.
□	= Inspection	19 Min.
▽	= Storage	-- Min.
	Total:	249 Min.

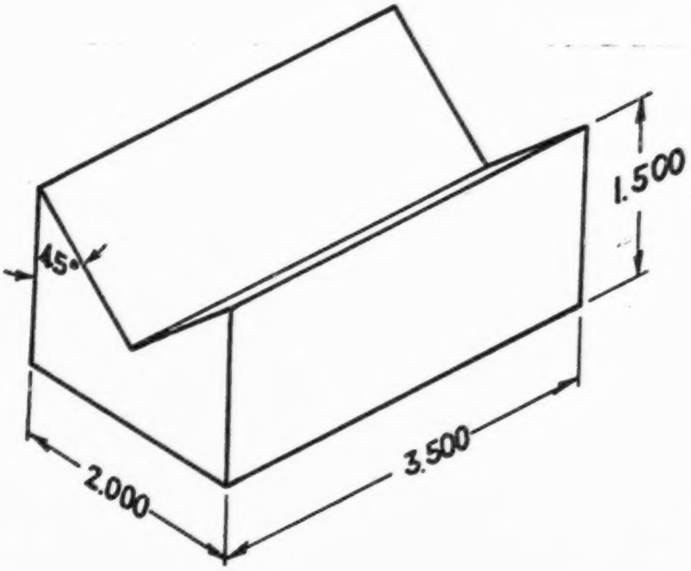
4

V. Evaluation

A. Identify the meaning of the following production flow symbols:

1. ▽ = ____________________
2. ◗ = ____________________
3. ○ = ____________________
4. □ = ____________________
5. ⇨ = ____________________

B. Prepare a production order and schedule sheet for making the V-block shown below. The request is for 17 of these to be completed one week from today. The order number is 3 and the approval is by John Jones. The material is cold rolled steel.



LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor____________________ Date________________

Unit Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain________________

6. Which activity did you use?________________
   The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain________________

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items____

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain_______________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain______________________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references______________________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor____________________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made________________________________

____

LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Lesson 22 - Product Fabrication and Control (1 period)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Utilize the drawings, specifications, and necessary equipment in the making and/or assembling of a specified product. In producing they should apply the control devices used in a simple quality control plan.

II. Scope

This lesson follows production from its planning to a completed product. However, the central theme is concerned with the bringing together of drawings, specifications, tools, and equipment for producing and controlling production of goods or services.

III. Resources

A. Instructional media

1. First level film catalog.
2. OT: Production Planning.
3. OT: Preparing for Production.
4. OT: Production Control.

B. Literature

1. Student booklet, Operating An Enterprise, pages 59-68.
2. Manufacturing in the School Shop, Haws and Schaeffer, 1960, American Technical Society, Chicago, Illinois.
3. Production Management Analysis, Garrett and Silver, 1966, Harcourt, Brace and World, Chicago, Illinois.
4. Understanding America's Industries, Berbracht and Robinson, 1962, McKnight and McKnight, Bloomington, Illinois,

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IV. Content Outline

A. Introduction

1. What would happen if I asked you to design and make a writing desk or a drill vise. How many could make one of these without drawings? How many of you would definitely make drawings? How many would not? For those not using drawings, what problems would you expect?

OT: Production Planning-

2. (Ask the above questions with the intent of bringing out problems in making or manufacturing without planning. Write the reasons for planning in the space provided on the OT. Use the acetate overlay.)

3. We are interested in the fabrication of goods or services and the methods of control involved in production. We will define our terms and discuss applications of production theories.

B. Activity and content

1. Fabrication is merely the making of and/or assembling of the product. This could be goods or services. In making or assembling, we need equipment, which includes items such as machines, furniture, and tools. Tools are devices used in guiding, forming, holding, and testing. (Project OT: Preparing for Production Fabrication.)

OT: Production Fabrication

2. Let's consider our laboratory and the tools and equipment used to produce ____________________ (select an item you have produced in the laboratory).

3. What equipment was used? (Let the students identify as much equipment as they can. Refer to the definition above.)

4. What tools would be required to produce a ____________________? (Refer to a production item being considered. This could be the item to be produced in this unit or Unit VII. Mark this equipment in the space provided on the OT. Use acetate overlay.)

5. Are there any special tools that might be used that would speed-up production? (Suggest positioning or hold down devices and identify some. Do not attempt to go into the specific area of jigs and fixtures at this level. Talk about tooling in general.)

6. (Next, go into the laboratory and identify the machines and tools used in making or assembling. Then, for those classes on a full year basis, start to decide what equipment will be needed for your next production item.)

7. Next we will study the ways in which production is controlled. Control, when referring to production, means those activities concerned with regulating production.

8. Production is controlled in three ways.

   a. Product control: Product control insures that the product is made according to specifications. Often it is referred to as quality control and inspection. (Project OT: Production Control without overlay.)

   b. Inventory control: Is the maintaining of necessary supplies for production. (Project overlay.)

   c. Operational control: Insures the proper flow of materials, men, and machines during production.

Attempt to apply each of these to product you have made in class. OT: Production Control

C. Conclusion

1. (Ask the class to describe a simple production plan for a one or two part product.)

2. (Ask the students to identify three types of production control and cite examples of each.)

10

V. Evaluation

A. Match the following:

_____ 1.	Maintaining necessary supplies for production purposes.	a.	Product control
_____ 2.	Insuring the proper flow of men and supplies during production.	b.	Content control
_____ 3.	Making sure that the product is made according to specifications.	c.	Inventory control
		d.	Operational control
		e.	Evaluation control

B. Describe briefly the steps you would take in producing a pencil holder if you had an idea for a new type.

____

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LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor ______________________ Date ______________

Unit Number ________ Lesson Number ________ Date Lesson Started ________

1. Amount of time used to complete lesson (to nearest ½ class period) ______

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain ______________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain ______________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain ______________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain ______________________

6. Which activity did you use? ______________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain ______________________

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items____________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain______________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain____________________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references____________________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor____________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made__________________________

____

LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Lesson 23 - A View of Production in Action (1 period)

Stout State University
Summer, 1967

23

I. Objectives: At the conclusion of this lesson the student should be able to:

Describe the typical sequence followed by industry in producing goods and services.

II. Scope

Industry has many examples of its accomplishments in every community. This lesson allows the students to view industry on site, through the eyes of someone from industry, or a film produced in an enterprise.

III. Resources

A. Instructional media

1. First level film catalog.

B. Literature

1. See Lesson 18 in this unit.

IV. Content Outline

A. Introduction

1. (This class period should be spent doing one of the following:)

a. Visit a local enterprise production area.

b. Listening to a representative of a local firm discuss the production process.

c. View a film which shows production in action.

B. Activity and content

1. Industry has many examples of their accomplishments in every community. Each product of industry follows a typical sequence in development. First is the need of a customer, next the design of the product, then production, and finally the sale of the product.

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2. (The above steps should be identified and studied before starting today's activity.)

3. (Introduce and complete the scheduled activity.)

C. Conclusion

(Ask the students to provide the sequence for the following:)

1. You had a home built.

2. You have purchased a new car.

3. You have had your vacuum cleaner overhauled.

5

V. Evaluation

(Your evaluation questions should be determined by the activity used. However, it should include the application of some production processes studied in this lesson.)

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

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If you need more room for comments, attach additional pages.

Instructor______________________________ Date____________________

Unit Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________

6. Which activity did you use?____________________
   The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ______________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________

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10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______________________________

____

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LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Lesson 24 - Selecting a Product and Planning for Production
(2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Select a salable product and plan the production of that product. (This product may be one of those attached to this lesson.)

II. Scope

This lesson gives the students an opportunity to produce a product with a minimum amount of direction from the teacher. The teacher may allow the students to select a product other than those attached to this lesson.

III. Resources

A. Instructional media

1. First level film catalog.

B. Literature

1. Student booklet, Operating An Enterprise, pages 43-56 (review).

2. Production Management Analysis, Garrett and Silver, 1966, Harcourt, Brace and World, Chicago, Illinois.

3. Organization for Production, Revised Edition, Richard D. Irwin, Inc., Homewood, Illinois.

IV. Content Outline

A. Introduction

1. Earlier in this unit, we did some production planning. Now, we are going to spend some time planning again. This time the students should be responsible for most of the planning. (Allow them to detail plans commensurate with their past learning.)

2. As in Lesson 21 of this unit, we will produce an item you have selected.

3. (In some classes the students may have selected, designed, and drawn the product earlier. If you wish to have them do this, make the assignment about two weeks prior to starting this lesson. More than one group might plan for and produce a good or service.)

B. Activity and content

1. We will start by assuming that you have selected the product and have the drawings for it. What is our next step? (Your students should mention the Production Order and Schedule Sheet.)

2. What other planning is necessary? (The flow process chart should be discussed.)

3. The floor layout should be next. How can we lay-out our laboratory for production of the ____________________? (Identify production item.)

4. (If time permits, do a simple layout of your laboratory. Also have the ideal layout done as an outside assignment. This would mean an open floor plan with any machines desired.)

5. (Don't forget inspection as part of product control.)

6. (If time permits, you may also discuss jigs and fixtures.)

C. Conclusion

1. (Check the plans carefully. Have the students study the plans for the possibility of errors or more efficient planning.)

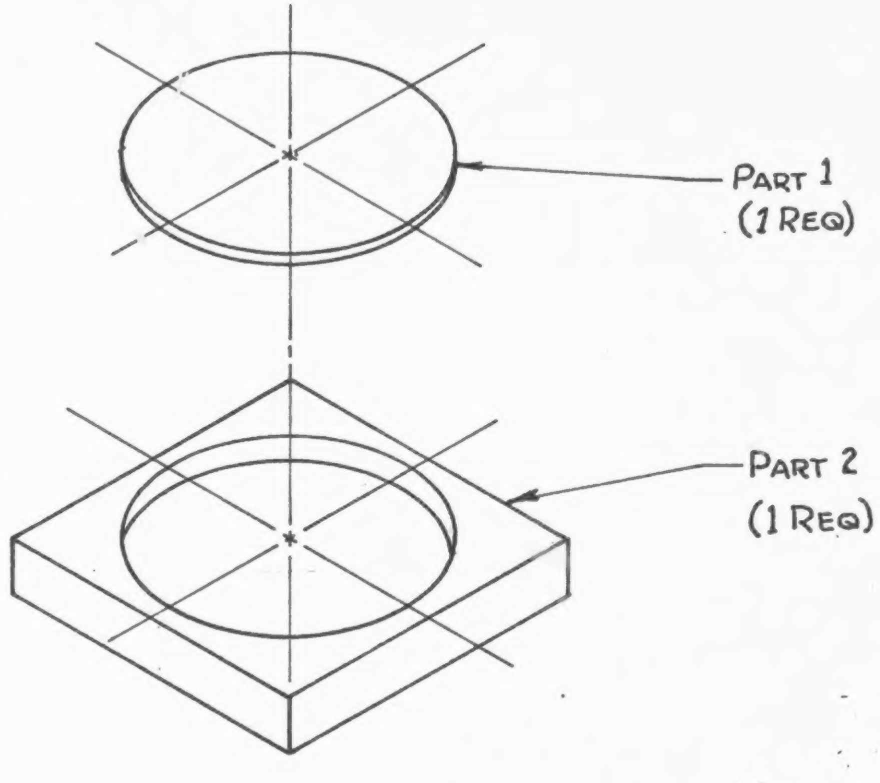
2. (Remind your students that during the next class period production will start. Also have them consider the type of job they would prefer.)

3. (The teacher may then place each student in a production job.)

4. (Attached are copies of suggested activities.)

LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Lesson 24 - Selecting a Product and Planning For Production
Student Activity Assignment Sheet #1

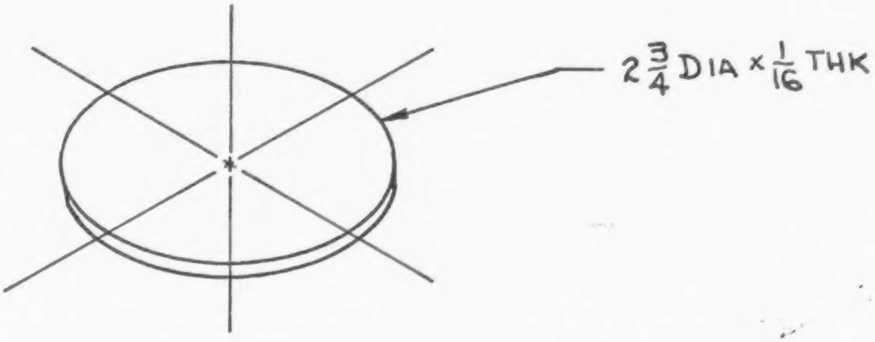
100



Title: Coaster	Serial No.	Sheet 1 Of 7
Company:	Model No.	
Date:	Part No.	

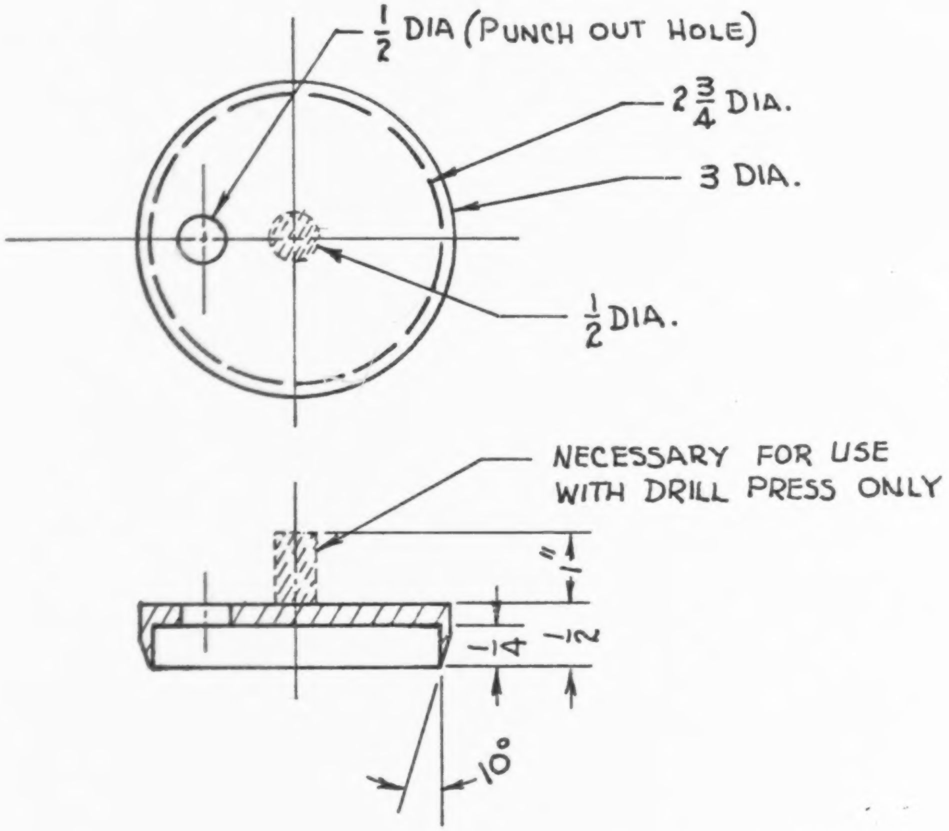
PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Die Cut Arbor or	D. Press or Vise				
2	Assemble	Hand				
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						



Serial No.	Sheet 2 Of 7
Model No.	Part: 1
Model Name: Coaster	Part Name: Cork Cushion

2

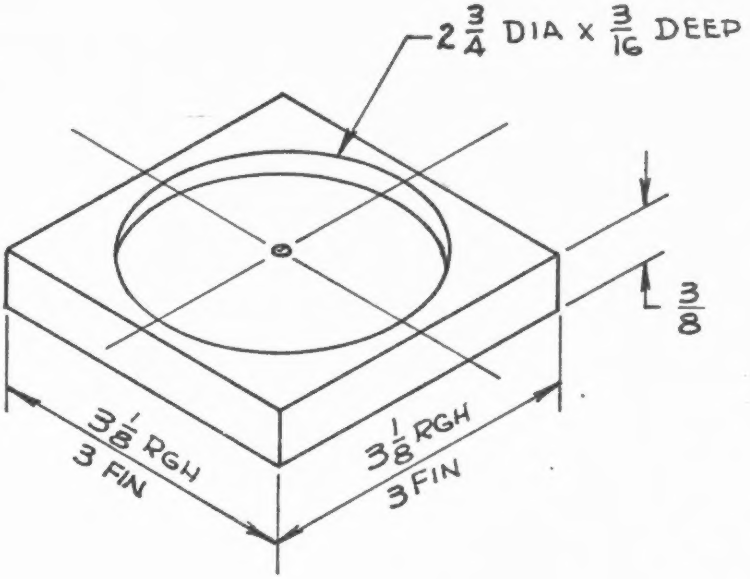


Title: Coaster Cork Cushion Cutting Die	Serial No.	Sheet 3 Of 7
Company:	Model No.	
Date:	Part No.	

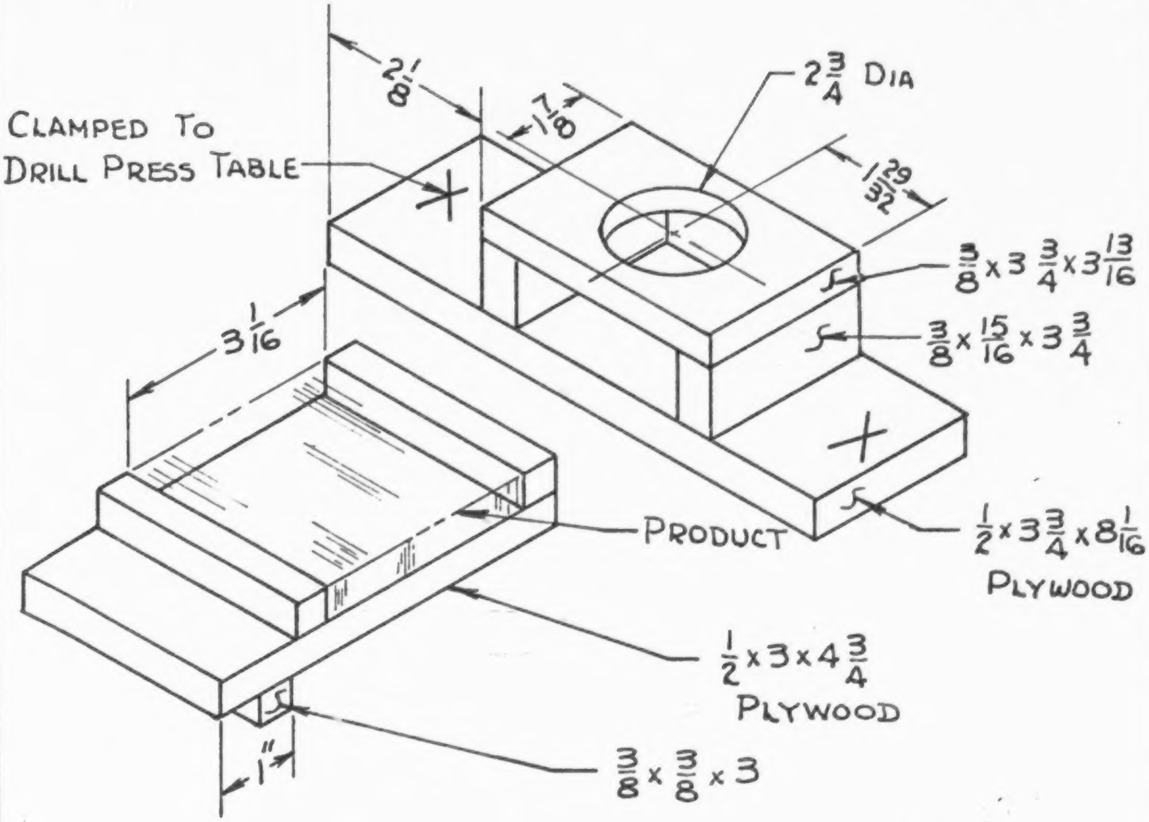
3

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Rip to 3 1/8"	B. Saw				
2	Crosscut to 3 1/8"	B. Saw				
3	Sand First Edge Sq.	B. Sander				
4	Sand to Width (3")	B. Sander				
5	Sand First End Sq.	B. Sander				
6	Sand to Length (3")	B. Sander				
7	Drill Hole	D. Press				
8	Sand Sides	B. Sander				
9	Finish Sand	Hand				
10	Finish	Hand				
11	Assemble	Hand				
12	Package	Hand				

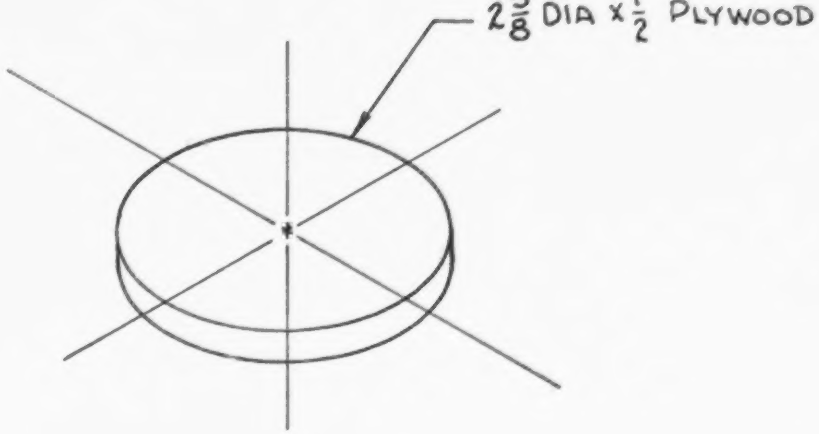


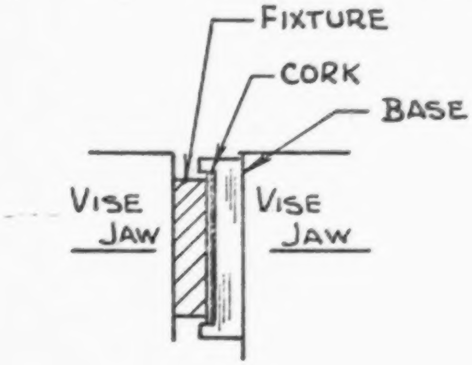
Serial No.	Sheet 4 Of 7
Model No.	Part: 2
Model Name: Coaster	Part Name: Base



Title: Coaster Drill Press Fixture	Serial No.	Sheet 5 Of 7
Company:	Model No.	
Date:	Part No.	

5

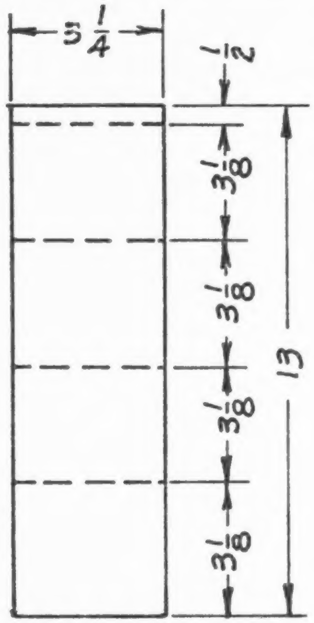




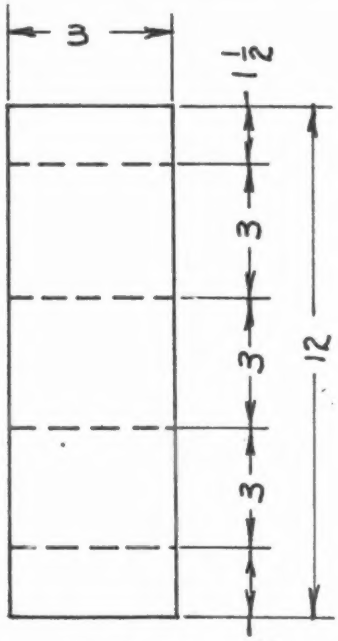
Title: Coaster Assembly Fixture	Serial No.	Sheet 6 Of 7
Company:	Model No.	
Date:	Part No.	

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	See Corn Skewer Holder Details for Scoring, Fixture					
2	Details, Assembly Fixture, and Assembly Techniques					
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

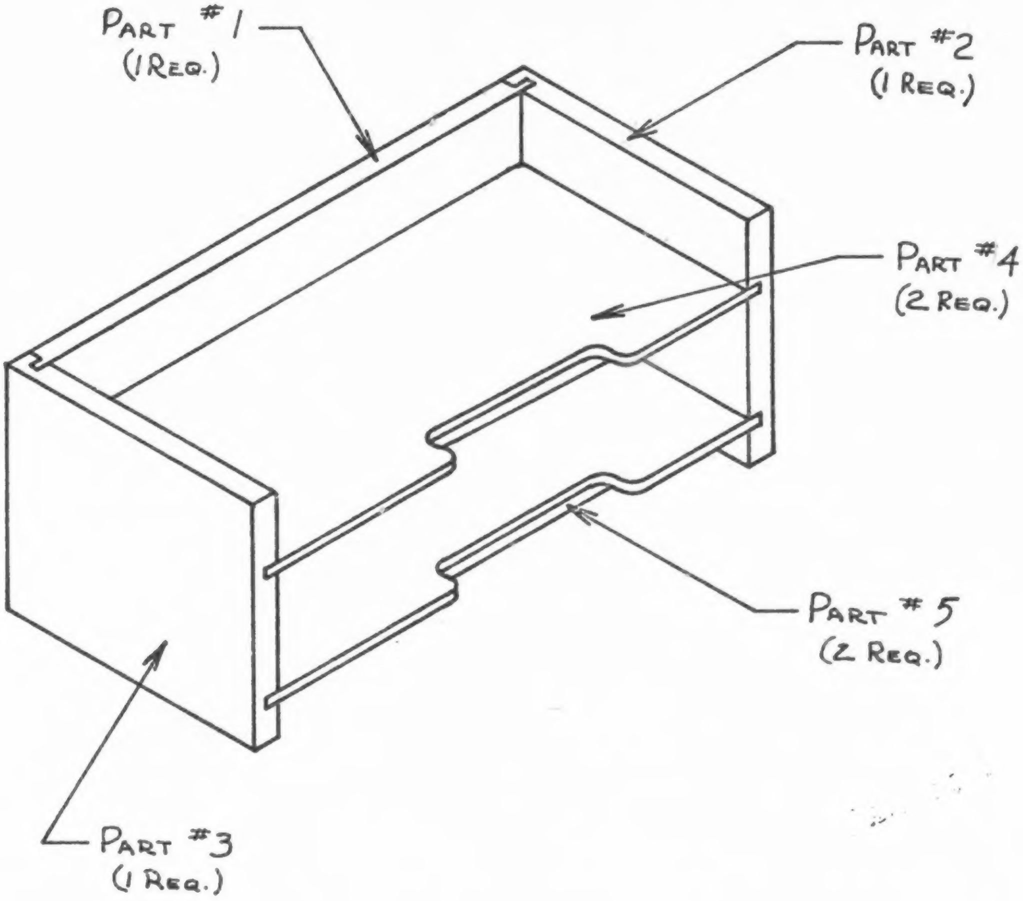


SHELL (P-1)



LINER (P-2)

Serial No.	Sheet 7 Of 7
Model No.	Part: P-1 and P-2
Model Name: Coaster Package	Part Name: Package Liner and Shell

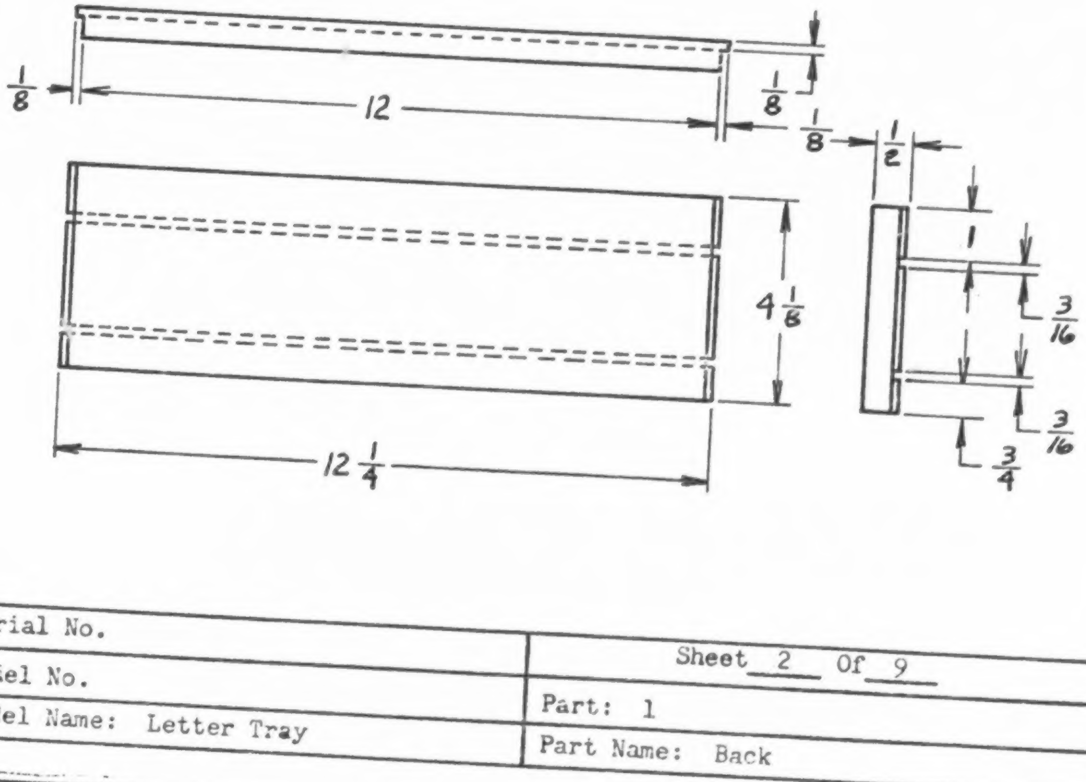


Title: Letter Tray	Serial No.	Sheet 1 Of 9
Company:	Model No.	
Date:	Part No.	

08

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Edge-to-Edge Glue	If Necessary				
2	Joint Better Side	Jointer				
3	Surface to 1/2	Surfacer				
4	Joint Better Edge	Jointer				
5	Rip to 4 3/16	Var. Saw				
6	Joint to 4 1/8	Jointer				
7	Crosscut Better End	Var. Saw				
8	Crosscut to 12 1/4	Var. Saw				
9	Cut Rabbets	Var. Saw				
10	Cut Grooves	Var. Saw				
11	Smooth Inside Surf.	P. Belt Sand				
12	Assemble	Hand				



Serial No.

Model No.

Model Name: Letter Tray

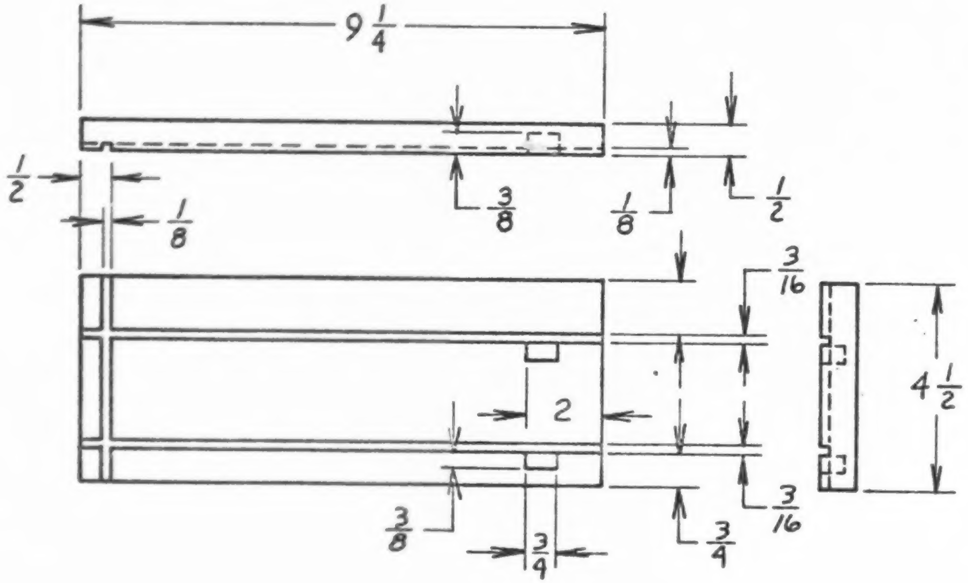
Sheet 2 Of 9

Part: 1

Part Name: Back

PRODUCTION ORDER

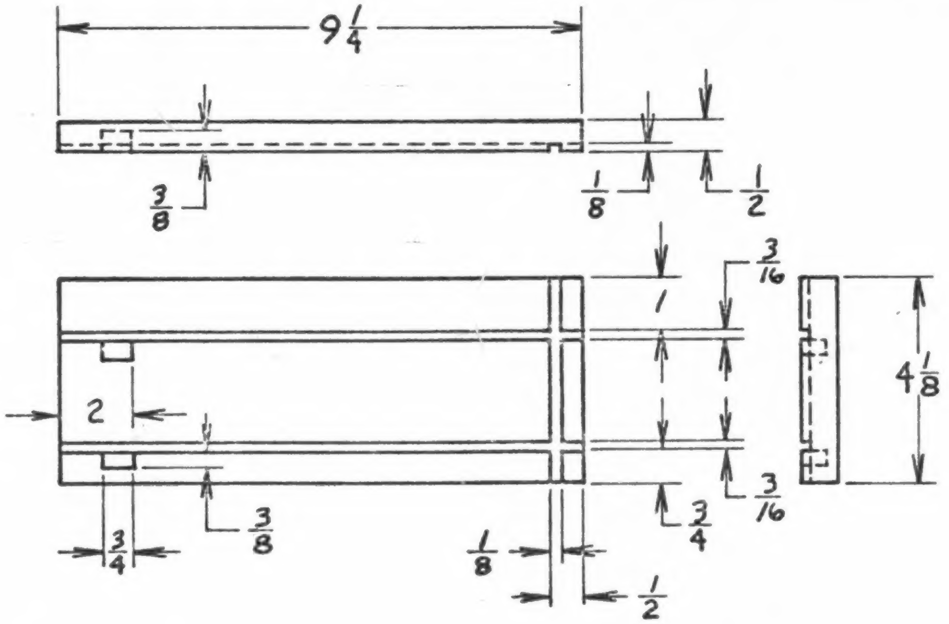
	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Edge-to-Edge Glue	If Necessary				
2	Joint Better Side	Jointer				
3	Surface to 1/2	Surfacer				
4	Joint Better Edge	Jointer				
5	Rip to 4 3/16	Var. Saw				
6	Joint to 4 1/8	Jointer				
7	Crosscut Better End	Var. Saw				
8	Crosscut to 9 1/4	Var. Saw				
9	Cut Dado	Var. Saw				
10	Cut Grooves	Var. Saw				
11	Cut Mortise 3/8 Deep	Drill Press				
12	Smooth Inside Surf	P. Belt Sand				
13	Assemble	Hand				



Serial No.	Sheet 3 Of 9
Model No.	Part: 2
Model Name: Letter Tray	Part Name: Right Side

PRODUCTION ORDER

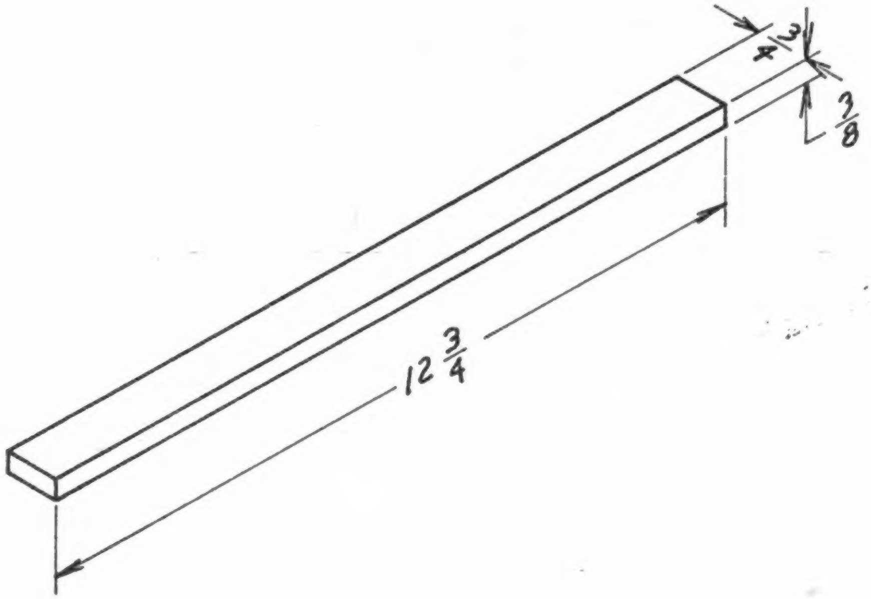
	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Edge-to-Edge Glue	If Necessary				
2	Joint Better Side	Jointer				
3	Surface to 1/2	Surfacer				
4	Joint Better Edge	Jointer				
5	Rip to 4 3/16	Var. Saw				
6	Joint to 4 1/8	Jointer				
7	Crosscut Better End	Var. Saw				
8	Crosscut to 9 1/4	Var. Saw				
9	Cut Dado	Var. Saw				
10	Cut Grooves	Var. Saw				
11	Cut Mortise 3/8 Deep	Drill Press				
12	Smooth Inside Surf	P. Belt Sand				
13	Assemble	Hand				



Serial No.	Sheet 4 Of 9
Model No.	Part: 3
Model Name: Letter Tray	Part Name: Left Side

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Joint Better Side	Jointer				
2	Surface to 3/4	Surfacer				
3	Rip to 1/2	Var. Saw				
4	Surface one side 7/16	Surfacer				
5	Surface Other Side 3/8	Surfacer				
6	Crosscut Better End	Var. Saw				
7	Crosscut to 12 3/4	Var. Saw				
8	Smooth Sides & Edges	Hand				
9	Assemble					
10						
11						
12						

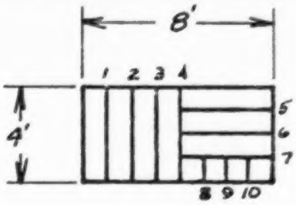


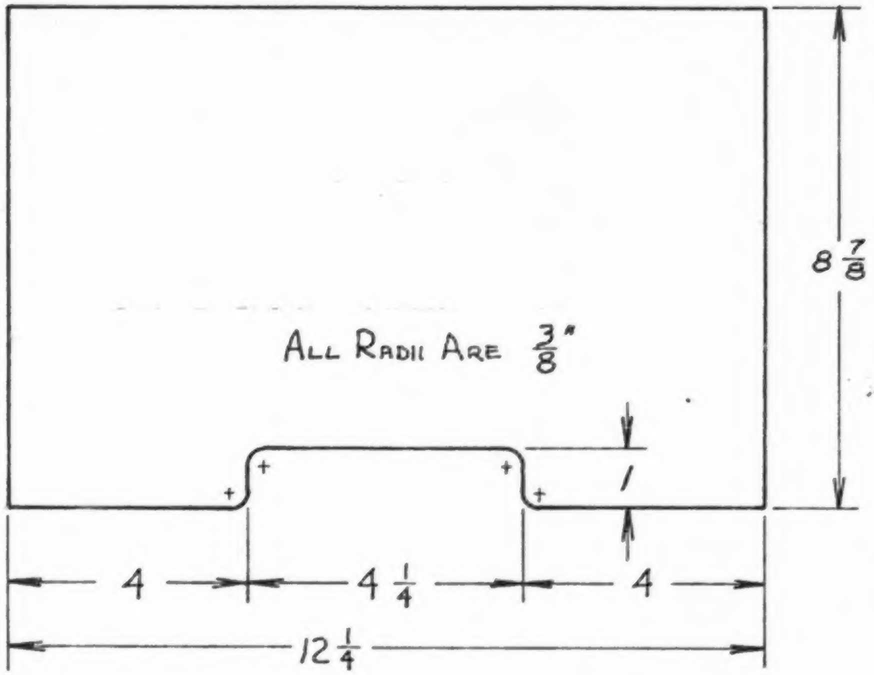
Serial No.	Sheet 5 Of 9
Model No.	Part: 5
Model Name: Letter Tray	Part Name: Spreader

12

PRODUCTION ORDER

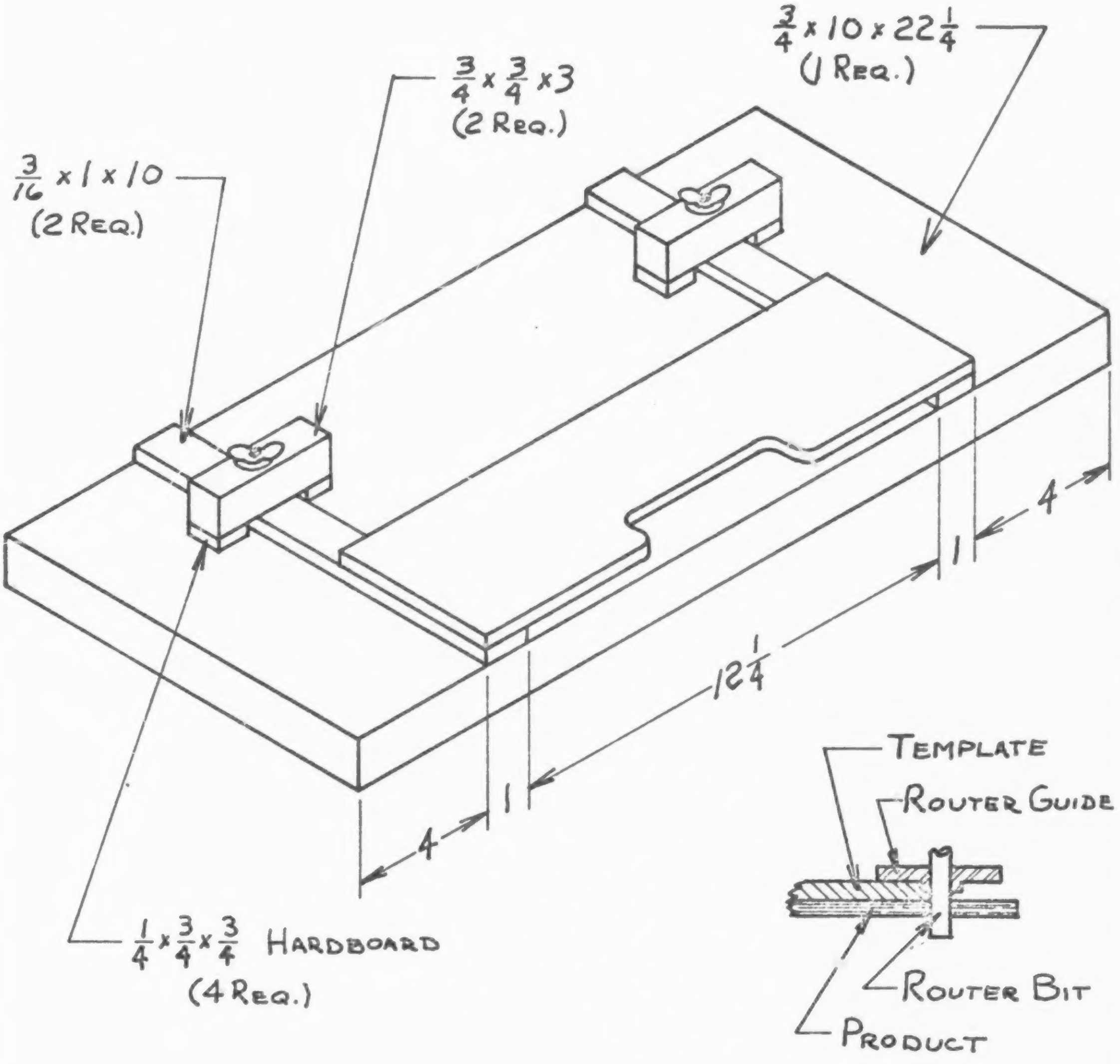
	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Rip to 12 1/4	Var. Saw				
2	Crosscut to 9	Var. Saw				
3	Route Finger Slot	Router				
4	Soften All Arrises	Hand				
5	Finish	Hand				
6	Assemble	Hand				
7						





Serial No.	Sheet 6 Of 9
Model No.	Part: 4
Model Name: Letter Tray	Part Name: Shelves

13

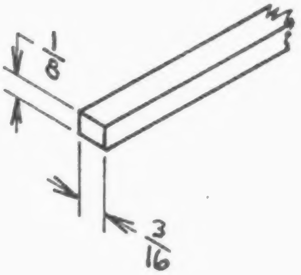

$\frac{3}{4}$ x 10 x 22$\frac{1}{4}$
(1 Req.)
$\frac{3}{4}$ x $\frac{3}{4}$ x 3
(2 Req.)
$\frac{3}{16}$ x 1 x 10
(2 Req.)
4
1
12$\frac{1}{4}$
1
4
$\frac{1}{4}$ x $\frac{3}{4}$ x $\frac{3}{4}$ HARDBOARD
(4 Req.)
TEMPLATE
ROUTER GUIDE
ROUTER BIT
PRODUCT

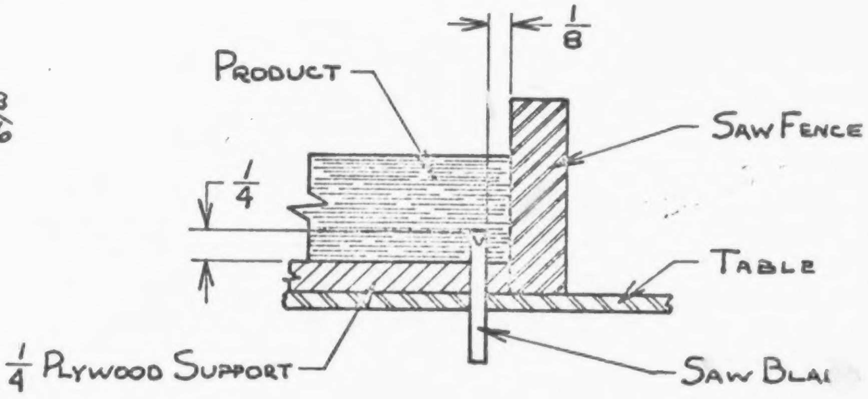
Title: Letter Tray Finger Space Router Jig	Serial No.	Sheet 7 Of 9
Company:	Model No.	
Date:	Part No.	

14

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Fill Holes	Plugs				
2	Fill Defects	Stick Lacquer				
3	Smooth	Belt Sander				
4	Finish	Hand				
5	Assemble	Hand				
6	Put On Felt Tabs	Hand				
7	Package	Hand				
8						
9						
10						
11						
12						

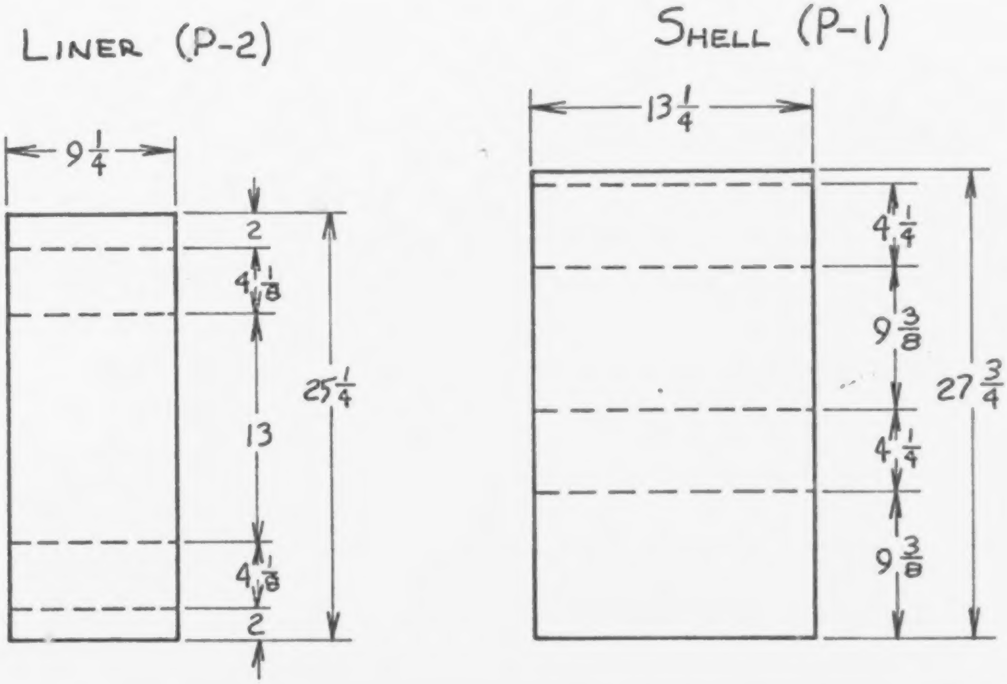




Serial No.	Sheet 8 Of 9
Model No.	Part:
Model Name: Letter Tray	Part Name: Processes After Assembly

PRODUCTION ORDER

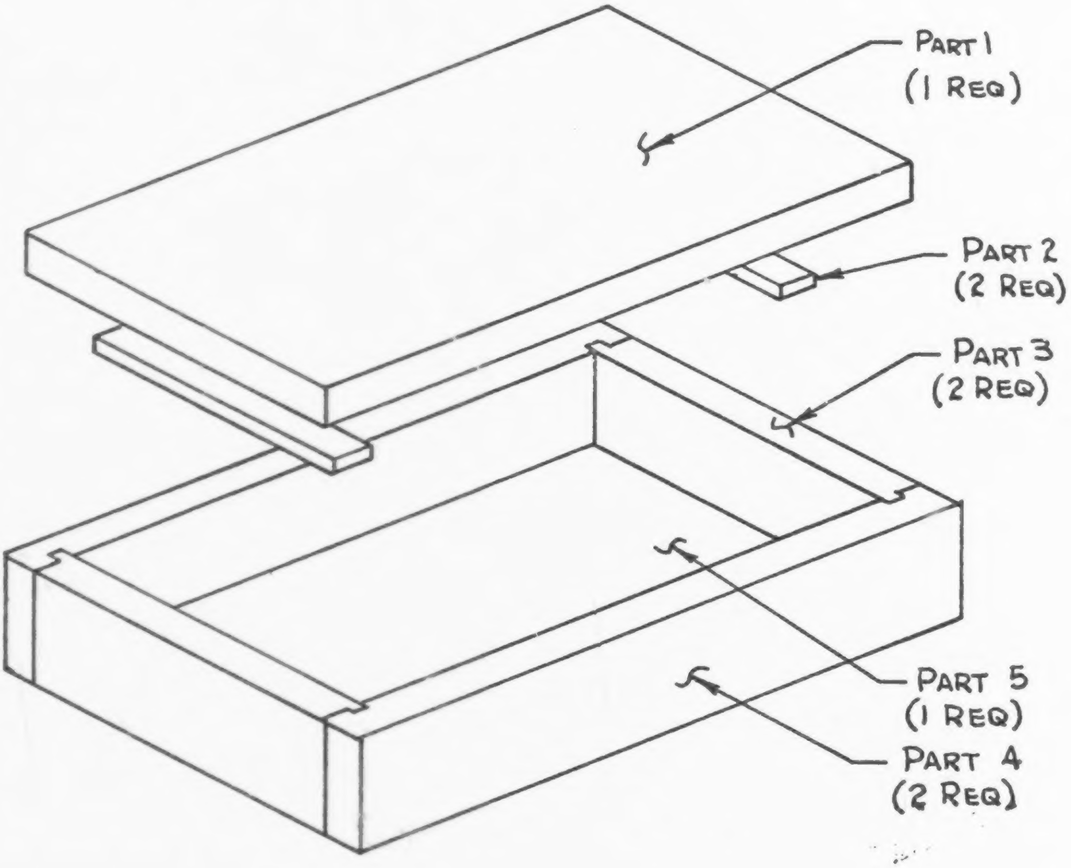
	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	See Corn Skewer Holder for Scoring Fixture Details and					
2	Assembly Techniques.					
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						



Serial No.	Sheet 9 Of 9
Model No.	Part: P-1 and P-2
Model Name: Letter Tray	Part Name: Package Shell & Liner

LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Lesson 24 - Selecting a Product and Planning For Production
Student Activity Assignment Sheet #3

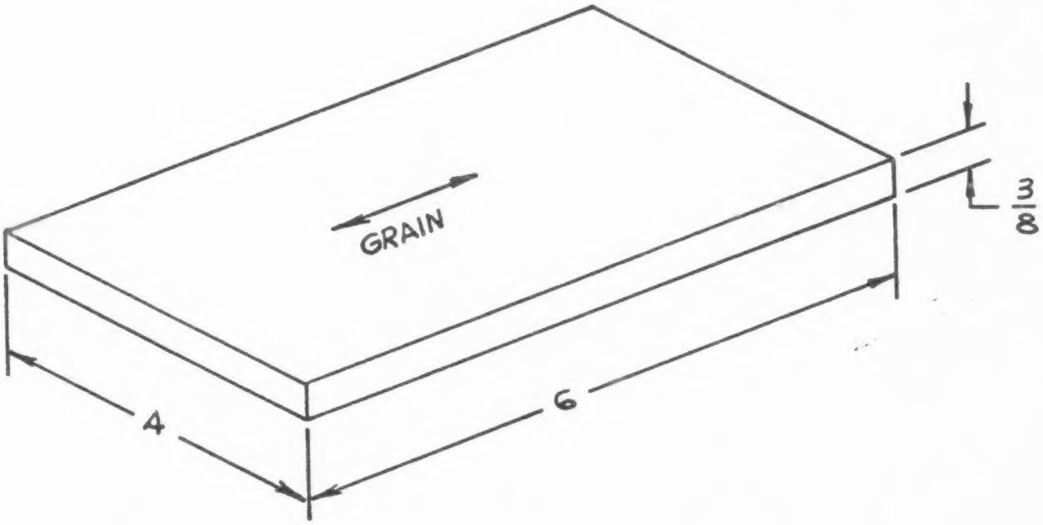
16



Title: Cigarette Box	Serial No.	Sheet 1 Of 13
Company:	Model No.	
Date:	Part No.	

PRODUCTION ORDER

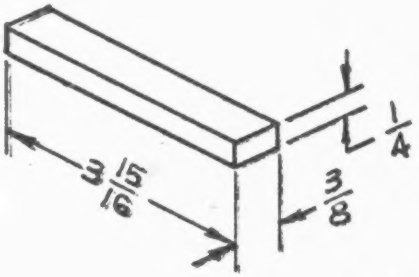
	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Surface to 3/8	Surfacer				
2	Joint Better Edge	Jointer				
3	Rip to 4 1/16	Var. Saw				
4	Joint to 4	Jointer				
5	Crosscut to 6	Var. Saw				
6	Smooth Sides	B. Sander				
7	Smooth Edges & Ends	Hand				
8	Assemble Cleats	Hand				
9	Finish Sand	Hand				
10	Finish	Hand				
11	Assemble	Hand				
12	Package	Hand				



Serial No.	Sheet 2 Of 13
Model No.	Part: 1
Model Name: Cigarette Box	Part Name: Top

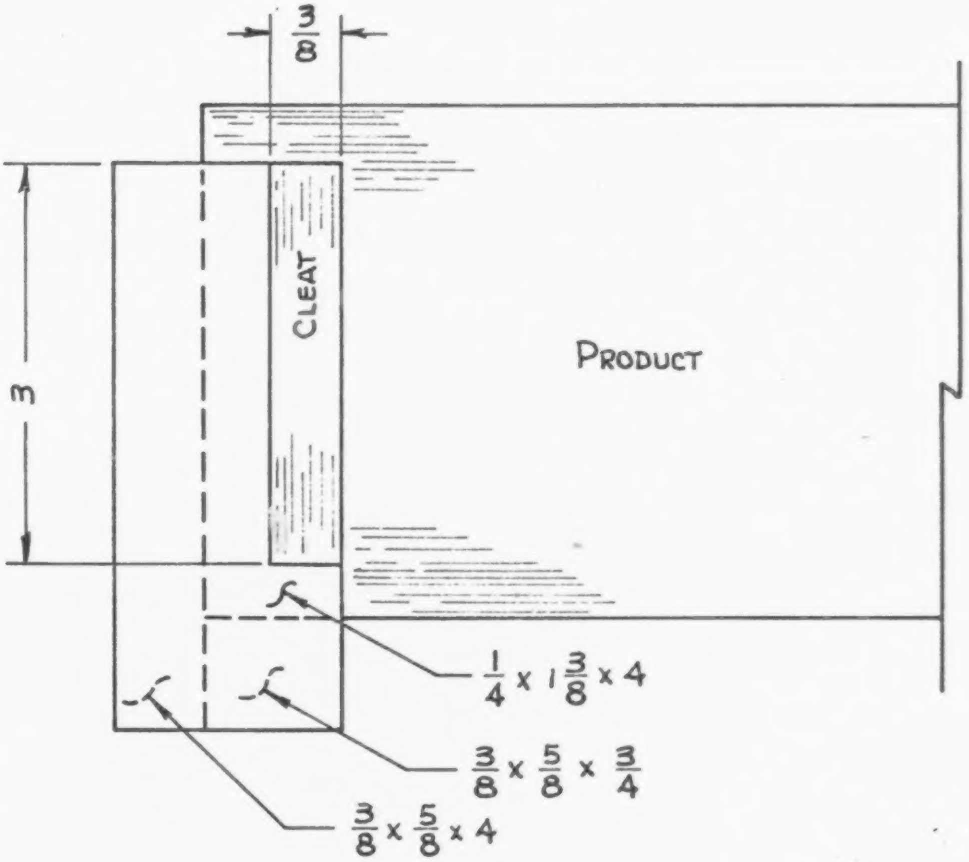
PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Rip to 3/8	Var. Saw				
2	Surface First Side	5/16 Surfacer				
3	Surface Second Side	1/4 Surfacer				
4	Crosscut to 3 15/16	Var. Saw				
5	Smooth	B. Sander				
6	Assemble	Hand				
7	Finish Sand	Hand				
8	Finish	Hand				
9	Assemble	Hand				
10	Package	Hand				
11						
12						



Serial No.	Sheet 3 Of 13
Model No.	Part: 2
Model Name: Cigarette Box	Part Name: Cleat

19

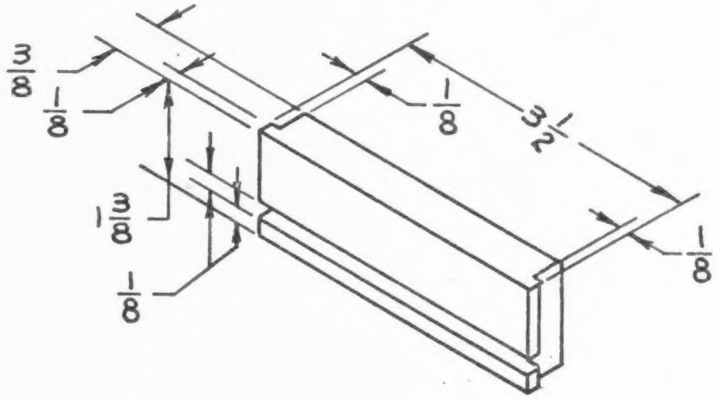


Title: Cigarette Box Assemble Fixture (Cleats)	Serial No.	Sheet 4 Of 13
Company:	Model No.	
Date:	Part No.	

70

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Surface to 3/8	Surfacer				
2	Joint Better Edge	Jointer				
3	Rip to 1 3/8	Var. Saw				
4	Crosscut to 3 1/2	Var. Saw				
5	Sand Inside Side	B. Sander				
6	Assemble	Hand				
7						
8						
9						
10						
11						
12						

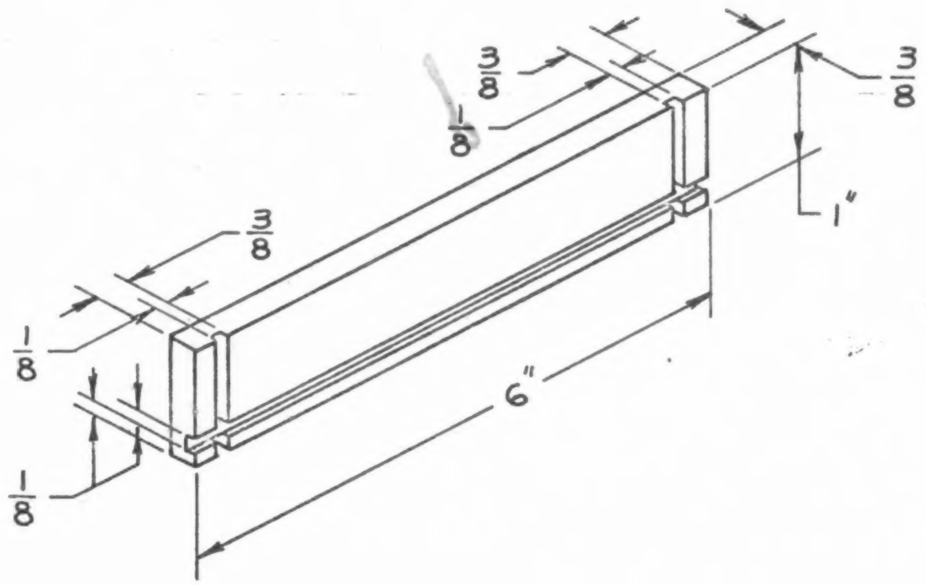


Serial No.	Sheet 5 Of 13
Model No.	Part: 3
Model Name: Cigarette Box	Part Name: Ends

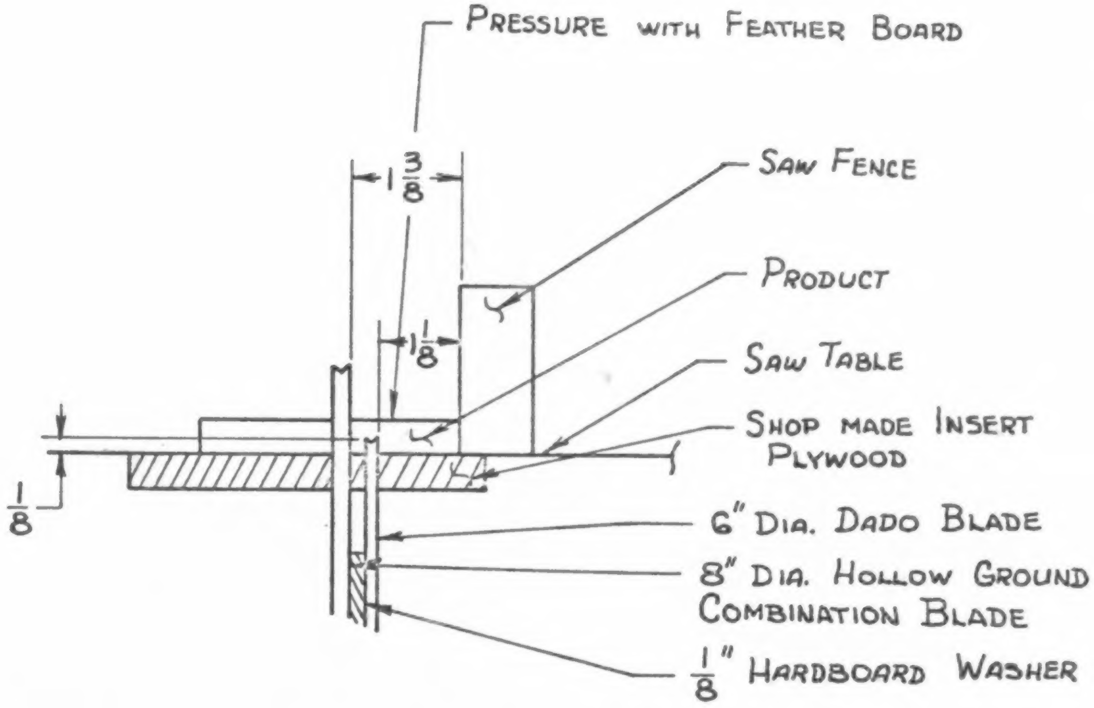
21

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Surface to 3/8	Surfacer				
2	Joint Better Edge	Jointer				
3	Rip to 1 3/8	Var. Saw				
4	Crosscut to 6	Var. Saw				
5	Smooth Inside	B. Sander				
6	Assemble	Hand				
7						
8						
9						
10						
11						
12						

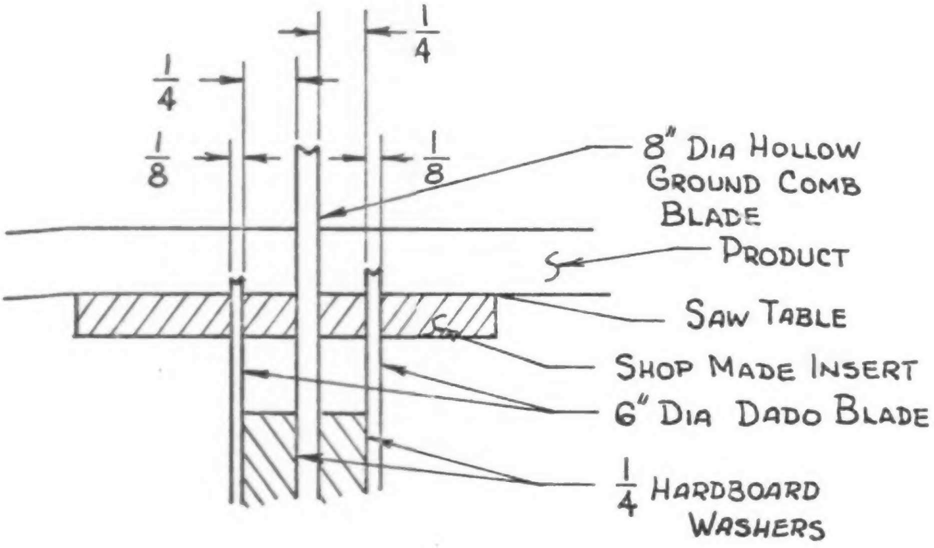


Serial No.	Sheet 6 Of 13
Model No.	Part: 5
Model Name: Cigarette Box	Part Name: Side



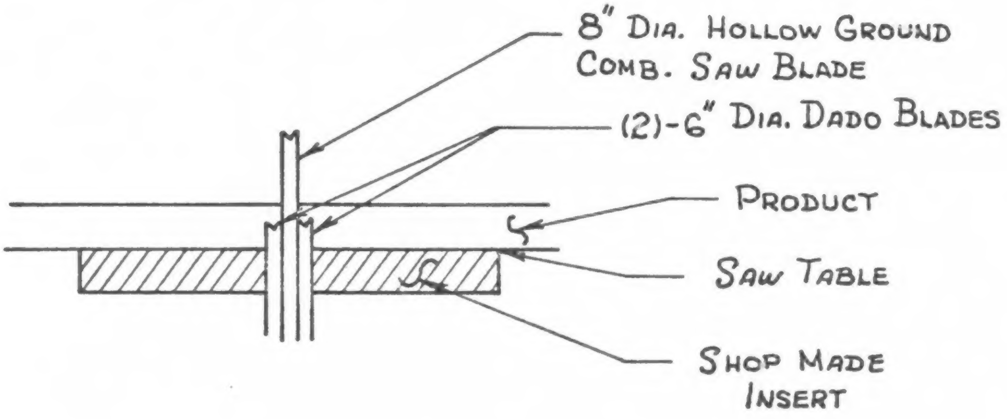
Title: Cigarette Box Tooling for Ripping Sides & Ends	Serial No.	Sheet 7 Of 13
Company:	Model No.	
Date:	Part No.	

23



Title: Cigarette Box Tooling for Crosscutting Sides to Length	Serial No.	Sheet 8 Of 13
Company:	Model No.	
Date:	Part No.	

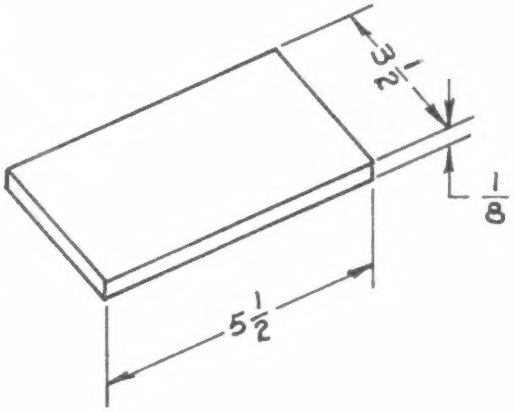
24

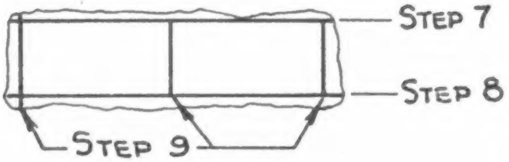


Title: Cigarette Box Tooling for Crosscutting Ends to Length	Serial No.	Sheet 9 Of 13
Company:	Model No.	
Date:	Part No.	

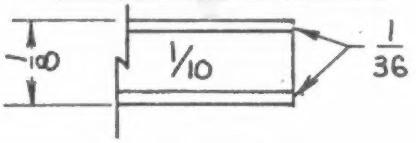
PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Crosscut to 12 Face	P. Cutter				
2	Rip to 4 (Face)	P. Cutter				
3	Rip to 12 (Core)	P. Cutter				
4	Crosscut to 4 (Core)	P. Cutter				
5	Press	Press				
6	Sand Both Sides	P. Belt				
7	Joint Better Edge	Jointer				
8	Rip to 3 1/2	Var. Saw				
9	Crosscut to 5 1/2	Var. Saw				
10	Assemble	Hand				
11						
12						



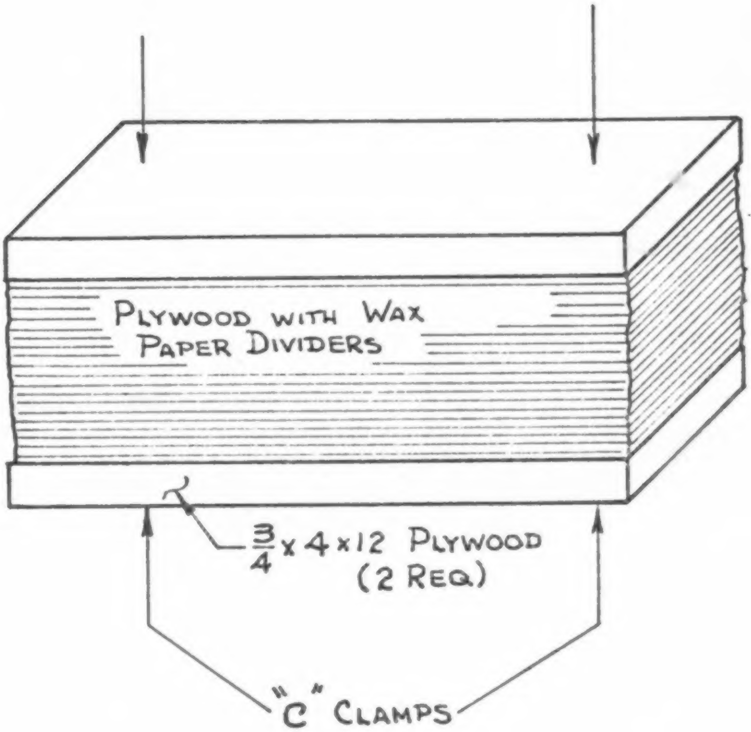


CUTTING SEQUENCE



PLYWOOD CONST

Serial No.	Sheet 10 Of 13
Model No.	Part: 5
Model Name: Cigarette Box	Part Name: Bottom

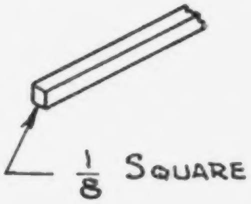

PLYWOOD WITH WAX PAPER DIVIDERS
$\frac{3}{4}$ x 4 x 12 PLYWOOD (2 REQ)
"C" CLAMPS

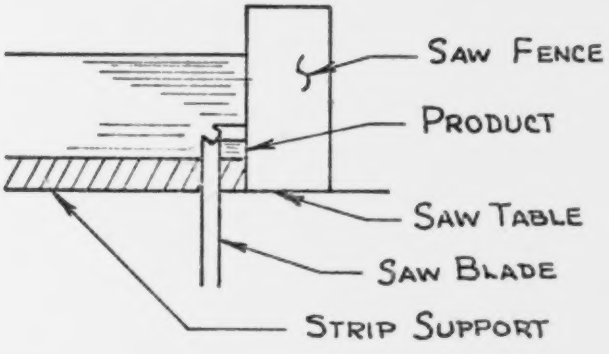
Title: Cigarette Box Plywood Press	Serial No.	Sheet 11 Of 13
Company:	Model No.	
Date:	Part No.	

27

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Sand Top & Bottom	B. Sander				
2	Plug Groove Ends	Hand				
3	Sand Sides & Ends	B. Sander				
4	Finish Sand	Hand				
5	Finish	Hand				
6	Put on Felt Tabs	Hand				
7	Assemble	Hand				
8	Package	Hand				
9						
10						
11						
12						

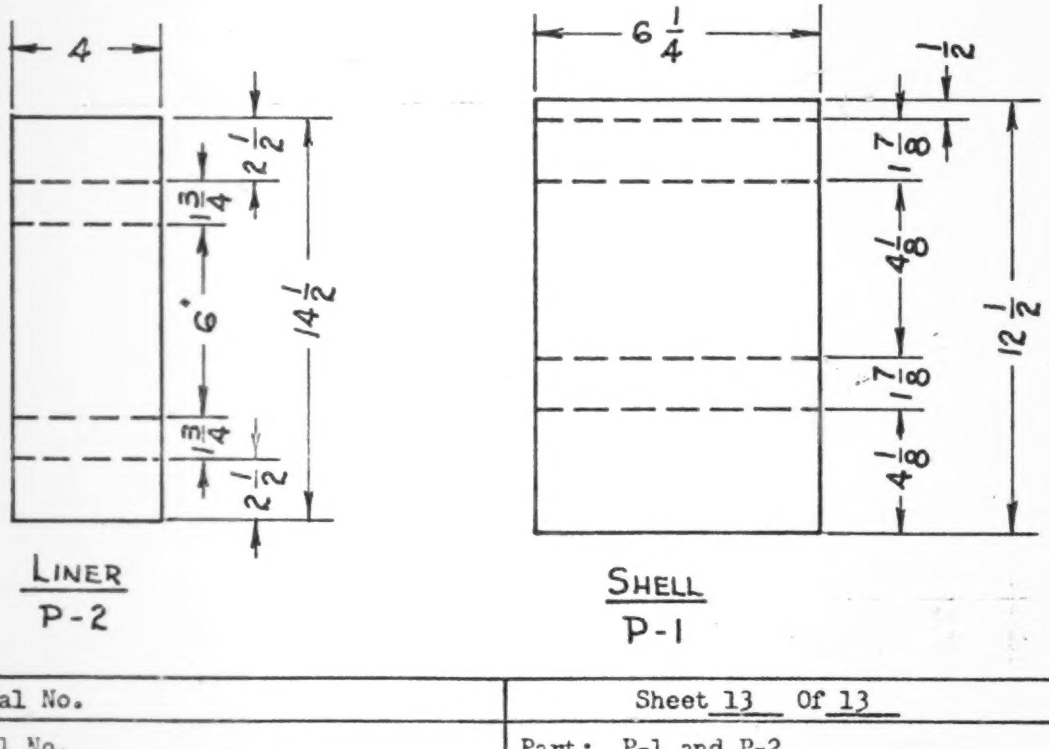




Serial No.	Sheet 12 Of 13
Model No.	Part:
Model Name: Cigarette Box	Part Name: Processes After Assembly

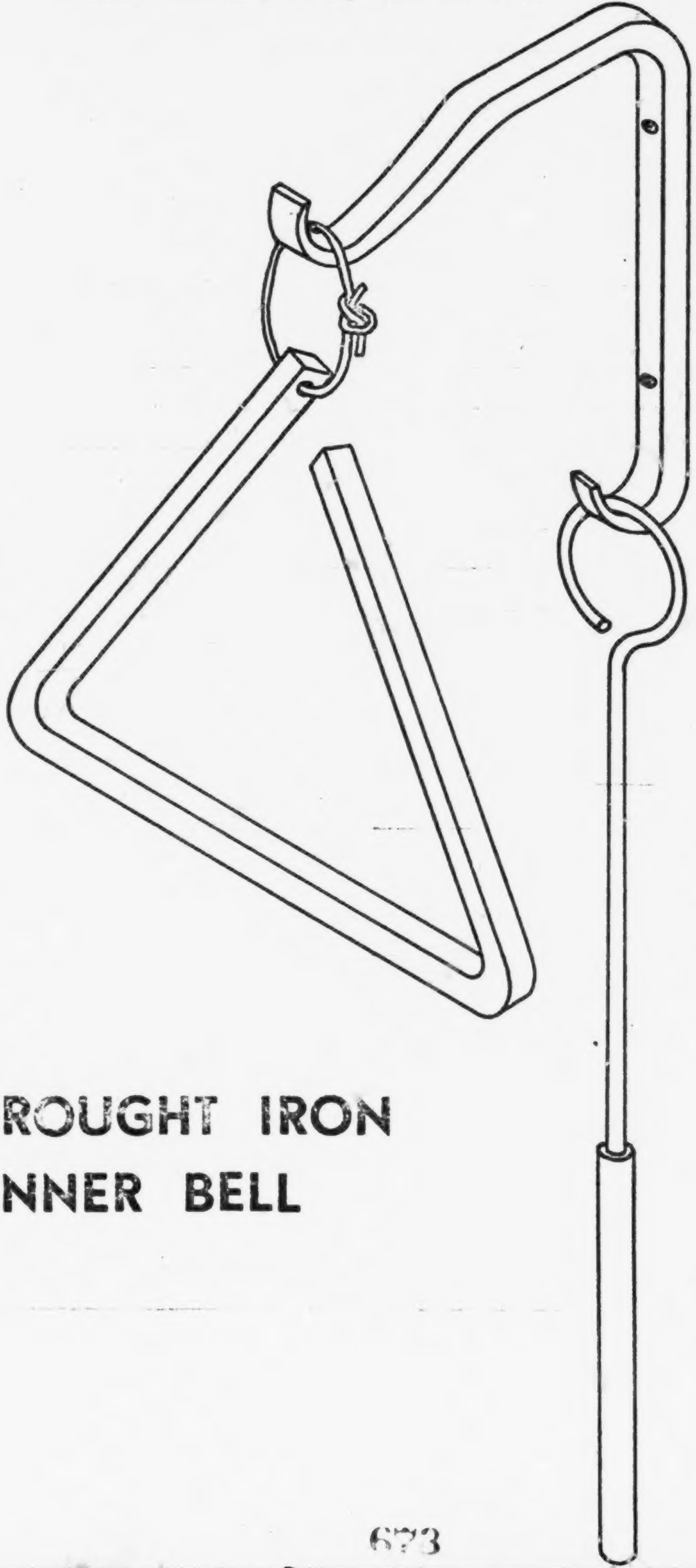
PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	See Corn Skewer Holder Details for Scoring Fixture					
2	Details and Assembly Techniques.					
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						



Serial No.	Sheet 13 Of 13
Model No.	Part: P-1 and P-2
Model Name: Cigarette Box	Part Name: Package Shell & Liner

LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Lesson 24 - Selecting a Product and Planning for Production
Student Activity Assignment Sheet #4



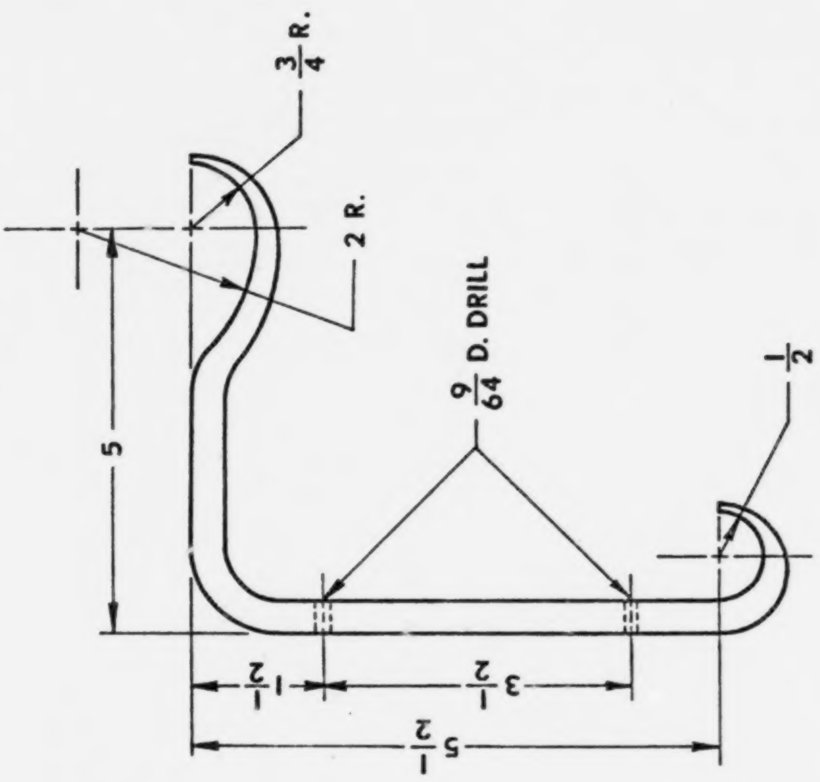
WROUGHT IRON DINNER BELL

WROUGHT IRON DINNER BELL

Bill of Materials

Quantity	Part	Material	Size
1	Bracket	Mild Steel	3/8" sq. x 3/8" x 12"
1	Triangle	Mild Steel	3/8" sq. x 3/8" x 20"
1	Striker Handle	Mild Steel	3/16" dia. x 10"
1	Striker	Mild Steel	3/8" dia. x 5"
1	Fastener	Rawhide	1/8" x 1/8" x 2"

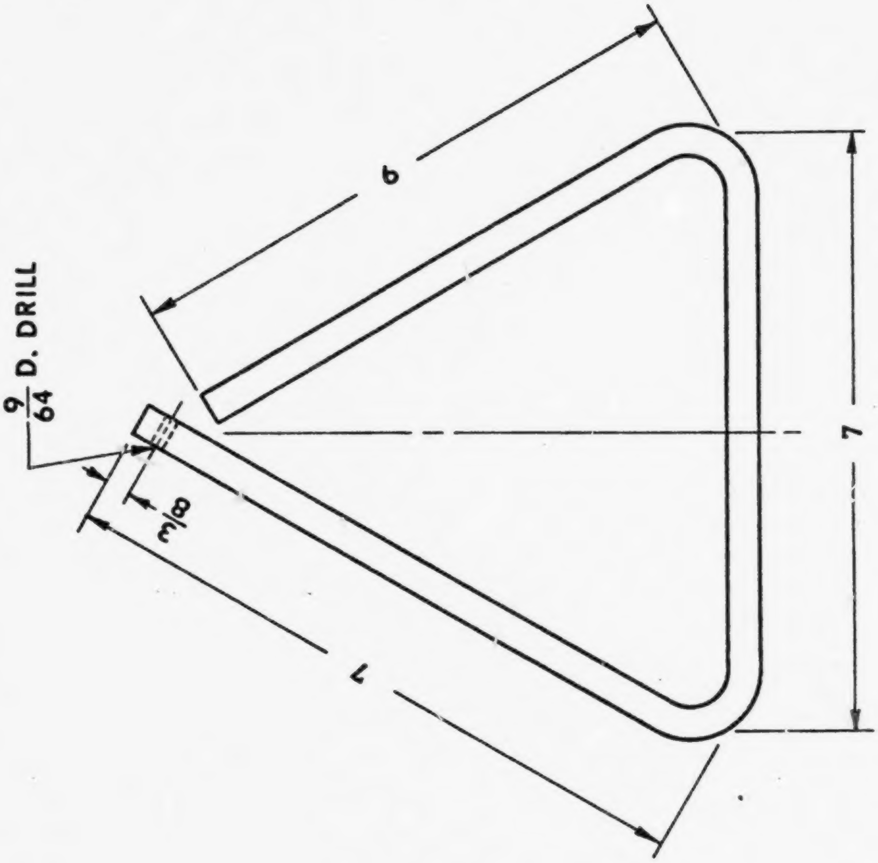
31



BRACKET

NOTE:
BREAK ALL SHARP EDGES.

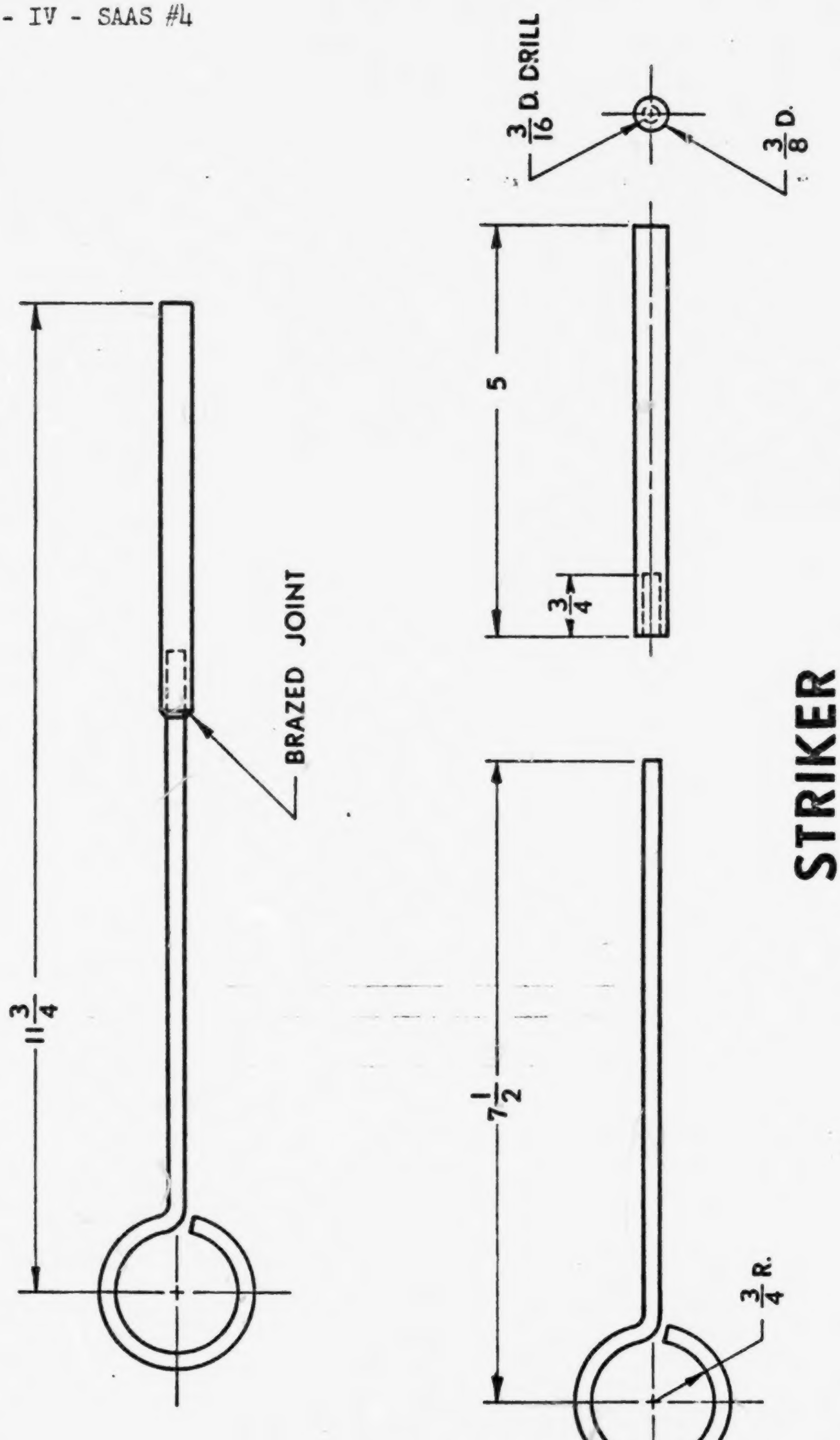
32



TRIANGLE

NOTE:
BREAK SHARP EDGES.

3



STRIKER

NOTE:
BREAK ALL SHARP EDGES.

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor________________________ Date____________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________
____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________
____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________
____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________
____

6. Which activity did you use?____________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Lesson 25 - Efficient Production (7 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Utilize a simple set of production plans in setting up and producing a product using production techniques similar to those found in industry.

II. Scope

With a production plan in hand, the student, with some teacher direction, should produce a product in a manner similar to that of industry. He will be applying the knowledge gained in previous lessons.

III. Resources

A. Instructional media

1. First level film catalog.

B. Literature

1. See Lesson 18 in this unit.

2. Review pages 43-68 in student booklet, Operating An Enterprise.

IV. Content Outline

A. Introduction

During the next six or seven class periods, this class will be given the opportunity to produce a product according to previously established plans.

1. Today we must answer some questions about these plans and the ways in which they will be used. After our production run we will study and answer the same questions again. In this way we should learn from our past experience. Some of the questions are: (Read them.)

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a. What type(s) of production will we use? (Line, departmental, and fixed position.)

b. What system(s) will be used? (Automated, continuous, intermittent, and custom.)

c. Have we established a production control system? (Product, inventory, and operational.)

d. What is needed to fabricate the product? (Make, assemble--equipment and tools.)

e. What will we make and what will we buy?

f. How many products can we produce in one class period?

2. These are some of the questions we must answer. A detailed list will be used before production is started and completed after the production run. Distribute the Production Check List.

B. Activity and content

1. (Use the attached Production Check List to aid the students in understanding and preparing for production. The form is self explanatory and should be partially completed before the production run. The remainder should be completed after the production run and studied by the group.)

2. (A film from the concept area of production could be shown as an introductory or culminating activity.)

3. (The production information in the student booklet, Operating An Enterprise, should be reviewed to aid in production.)

Assign the first day of the lesson.

4. (Discuss student suggestions to improve the production plans, then "freeze" or stabilize your plans. This should be done just after the pilot run and just before going into production.)

5. (Know how many products you wish to make. Plan to make them in a specified period of time and then calculate the "real time" or actual time required for production.)

8

C. Conclusion

(The final day of this lesson should be spent reviewing the production plans and techniques used in your recent production activity. The good points and the suggested changes should be discussed and recorded. This will prevent future errors of the same type. The Production Check List forms should be used for this.)

PRODUCTION CHECK LIST

A. Name of item to be produced ____________________

B. Complete the items in the "Before" column before the production run is made and the "After" column upon completion of the production run.

C. Notice the difference in the answers and apply the learning in your next production run.

	Before	After
1. What type or types of production should be used in making this item? a. Line b. Departmental c. Fixed position		
2. What production system or systems should be used in producing this item? a. Automated b. Continuous c. Intermittent		
3. Was a product control system set up? Describe briefly as established prior to the production run. (If yes, place description on a separate sheet.)		
4. Was inventory control maintained? How? (Before the production run--answer on a separate sheet.)		
5. How was the production operation controlled? (Answer on a separate sheet.)		
6. What materials are needed to make this product?		
7. What will we make and what will we buy?		
8. How many products can we make in 30 minutes of production time?		

V. Evaluation

A. Answer the following questions as briefly as you can. If additional space is needed use paper provided by your teacher.

1. What is meant by product fabrication?____________________

2. If you feel that a production drawing is in error, what action should you take?____________________

3. Give three major considerations of a make or buy decision:

   a.____________________

   b.____________________

   c.____________________

4. Select a simple product and describe the way you would fabricate it.

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor____________________ Date________________

Unit Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain________________

____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain________________

____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain________________

____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain________________

____

6. Which activity did you use?________________

The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

LEVEL I - American Industry
UNIT IV - Operating An Enterprise
Lesson 26 - Production Control (1 period)

Stout State University
Summer, 1967

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I. Objectives: At the conclusion of this lesson the student should be able to:

Compare the drawings and specifications of a simple product to the actual product and determine whether the product has been made according to the plans.

II. Scope

This lesson is devoted to product control and evaluation of the student's learning.

III. Resources

A. Instructional media

B. Literature

1. Review pages 64-68 of the student booklet, Operating An Industry.

IV. Content Outline

A. Introduction

1. (Your class has just finished the production of a product and probably each student has one. In this lesson we will see how well our drawings and specifications have communicated and what our students know about product control.)

Have copies of the drawings, specifications, production orde and the product produced during this unit.

B. Activity and content

1. (To start this activity, distribute copies of the production drawings, then ask questions about the product. Examples are shown below.)

During this discussion, relate the various concept areas of A. I.

a. What material(s) were used in making the product?

b. How much material was required to make the (identify a detail part)?

c. What is the overall height, length, and width of (identify all or part of the product)?

d. What is a dimension tolerance?

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e. Do we have any shown on our drawings? (If none are shown ask what the tolerances were and how the product was inspected.)

f. What is the purpose of our Production Order and Schedule Sheet?

g. Does the product that we produced meet the specifications on the drawing? (Allow time for the students to determine the answer or have the inspectors demonstrate their inspection methods.)

h. What is value analysis? (Discuss value analysis only to relate it to its study in the concept area of procurement.)

i. In examamining our product do you know of anything that can replace it? If so, is it about the same quality? Could we make it cheaper and not decrease the performance of the product?

j. Were the production plans for this product adequate?

k. How would you improve the production plans?

l. (The questions above represent the basic ideas to be brought out in this lesson.)

C. Conclusion

(To conclude this lesson a short quiz covering the concept of production should be given. Questions may be selected from all lessons in this unit if desired.)

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V. Evaluation

(The evaluation following this lesson should consist of questions selected from all lessons in the area of production.)

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor____________________ Date______________

Unit Number______ Lesson Number______ Date Lesson Started______

1. Amount of time used to complete lesson (to nearest ½ class period)______

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain______________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain______________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain______________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain______________

6. Which activity did you use?______________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain______________

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items______________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain__________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain______________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references______________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor____________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made_________________________

____

LEVEL I
UNIT FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this unit, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor____________________________ Date________________

Unit Number________ Date Started_________ Date Completed_________

1. The approximate time spent in laboratory was______%.

2. Generally, this unit was found to be (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

3. The general unit objectives were (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ impossible to meet, (e) ☐ too broad, (f) ☐ too restrictive. If (c), (d), or (e) explain____________________

4. Generally, the activities were found (a) ☐ adequate, (b) ☐ not suited to the lesson(s), (c) ☐ not enough of them. If (b) or (c) explain____________________

5. The student booklet (a) ☐ provided enough background reading for the students, (b) ☐ should have contained more information, (c) ☐ did not fit together with the lessons. If (b) or (c) explain____________________

6. The instructional media for this unit was generally (a) ☐ effective, (b) ☐ ineffective.

(Be sure to fill out the items on the reverse side.)

7. Did you make any changes in the lesson sequence or contents in this unit?

(a) ☐ yes, (b) ☐ no. If you checked (a), please describe the changes.

____

____

8. Give a general summary of your feelings about this unit. Include the strong and weak points you found.

____

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LEVEL I - American Industry
UNIT V - Distributing Products and Services
Introduction

Stout State University
December, 1967

INTRODUCTION

I. Unit V completes the segment of this course which contains a sequential study of each concept area plus their interrelationships.

The following is a group of themes around which the lessons were written:

A. Marketing: Marketing consists of those activities utilized by an enterprise which causes customers to procure its products. Customers who, through advertising, have been informed about a product may find a need for and purchase the product. If they have been accurately informed, the product will perform as advertised. Remember--satisfied customers buy again.

B. Transportation: The planned movement of people or property from one location to another is transportation. Several basic considerations must be taken into account when planning the movement of people and property. The item type, its size, and shape must be considered along with the time required, the route, and finally the cost of transporting.

II. Activities

Activities have been developed in the concept areas of marketing and transportation. They should provide an in-depth understanding of these two concepts plus serve as a point of departure in identifying the interrelationship of the basic concepts of American Industry.

III. Evaluation

Evaluation items have been included in each lesson. When additional evaluation items are used, please send copies of them to the American Industry Project.

IV. Instructional Media

The use of instructional media has been suggested for the following lessons. In some cases the media is optional, therefore, each lesson should be reviewed to determine what media will be used.

A. Films.

Lesson	Concept Area
2	Marketing.

B. Other media.

Lesson	Title
1	OT: Marketing
3	OT: Marketing: Research
4	SS: Advertising
6	SS: What's In A Name
7	OT: Transportation
8	OT: Transportation: Planning
9	OT: Transportation: Methods

LEVEL I - American Industry
UNIT V - Distributing Products and Services
Unit Layout

Stout State University
December, 1967

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Lesson No.	Periods Required	Concept Area	Lesson Title
*1	2	Marketing	Marketing Goods and Services
*2	1	Marketing	Pricing and Its Influence on Sales
*3	2	Marketing	Know What Your Customers Want
4	2	Marketing	Convince People to Buy: Advertising and Sales
5	1	Marketing	Satisfied Customers Buy Again
6	1	Marketing	What's In A Name
*7	1	Transportation	Transportation: Moving People and Materials From One Place to Another
*8	2	Transportation	Transportation Has To Be Planned
9	2	Transportation	How Can We Efficiently Move Things From One Place to Another
10	1	Transportation	Restrictions on Transportation

*Suggested lessons for an eighteen week course.

LEVEL I - American Industry
UNIT V - Distributing Products and Services: Marketing
Lesson 1 - Marketing Goods and Services (2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Define marketing in his own words. The definition will include the following attributes: the enterprise's activities that cause a consumer to procure its products. He will also be able to identify marketing activities utilized by local enterprises and identify why consumers purchase products.

II. Scope

The goal of this lesson is to introduce the student to the activities related to marketing and to identify the reason why consumers purchase goods and services. For the most part, the activities and examples are structured to bring the student into direct contact with actual examples of marketing activities and consumer demand. (If you are short on time and want to use only three or four days in marketing, you can probably expand this lesson to accomplish this.)

III. Resources

A. Instructional media

1. OT: Marketing.

2. Ditto copies of activity sheets (see activity in lesson for pages to be copied).

B. Literature

1. If you are going to use only this lesson in the area of marketing, assign pages 1-25 in the student booklet, Distributing Products and Services.

2. If you intend to use the entire series of lessons on marketing, assign pages 1-4 in student booklet, Distributing Products and Services. However, you could encourage your students to browse through pages 5-25 at the same time they read pages 1-4.

3. If you use only this lesson in the area of marketing, assign your students to bring a sample advertisement for the first transportation lesson. See Lesson 7 for further details.

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IV. Content Outline

A. Introduction

1. In the last two units we have studied how goods and services are produced. However, no enterprise can stop its activities at this point. These goods and services have to be marketed if the enterprise is to remain in business.

2. Marketing is: Those activities of an enterprise that cause the consumer to procure its product(s). (Write this definition on the board.) In the next few days we are going to study marketing more closely.

3. How did we market the product we made in Unit I? (Bring out the following points through the actual activities used in Unit I and list them on the board.)

   a. Market analysis: Price and demand. (Project OT: Market Analysis Section. Use as clue to one aspect.)

   OT: Marketing

   b. Advertising: Informing the consumer, pointing out his need for the product. (Project Advertising Section as clue.)

   c. Sales: Methods used to transfer ownership to the customer. (Project Sales Section.)

   d. Service: Activities done to assure the customer's satisfaction, e.g. replacement of poor items, etc. This may not have been a part of Unit I and thus would be omitted at this point. (Project Service Section.)

   e. These are marketing activities we used to convince students to buy our product. (It would be best to use the name of the product produced in Unit I. Project OT: Marketing without wheel. This will show the marketing definition and each aspect of marketing.)

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4. We have just listed the ways we used to market the product produced in Unit I. Now, let us think about another problem in marketing, "Why did the customers buy our product?" (Bring out the fact that this satisfied one or more of their needs.)

B. Activity and content

(Direct experiences with marketing activities and problems.)

1. Preparation:

   a. (Reproduce and prepare the materials listed on the activity sheet which follows this lesson.)

   b. (If you have some students in your class who are of low ability, you will want to select some of the easier problems for them.)

2. Presentation:

   a. I am going to give each of you a problem in marketing. You will have about five minutes to write your answer. Then we will discuss your answers.

   b. (Hand out the questions.)

   c. (After five minutes time is up.)

   d. I am going to give each of you a complete list of the questions given to the class. As we discuss the answers to these problems, you can record the answer to each question. (Hand out the questions.)

   e. (Discuss the questions in numerical order. Questions 1-7 deal with the reasons why consumers buy products. Out of this should come the realization that consumers buy to satisfy their needs. Questions 8-17 deal with marketing activities. Use the chart below to guide your discussion. List main point of each answer on the blackboard as the discussion progresses.)

   (Why do people buy goods and services?)

(1) How much after-shave lotion could you sell to your classmates? Why?
(Bring out that the need for this product will limit sales. If you have older students, ask them how much lotion they could sell to eighth graders.)

(2) List two items you bought recently. Why did you buy them?
(Bring out need. If the discussion moves to the difference between basic needs and desires you can note that each causes people to buy.)

(3) How much lipstick could you sell in this class? Why?
(None or very little since the need is not there. Gifts would be one exception.)

(4) How many ice skates could you sell to your classmates in June? Why?
(Very few--there is little need at that time for skates. Bring out the timing here but do not dwell on it.)

(5) How many wooden pencils could you sell at $3.50 each? Why?
(Very few--if any. Price is too high. Ask whether pencils are needed. Since they are, price must influence purchase also.)

(6) How many ball point pens could you sell for a nickel a piece? Why?
(People (students) need them and the price is reasonable.)

(7) If you sold candy bars one for 10¢ and two for 15¢, which price would sell the most candy bars? Why?
(Probably two for 15¢ if the person needed two candy bars and had the money. Point out that need causes the person to buy and the price influences quantity purchased.)

We have discussed the sale of several products. What was the basic part of each sale?
(Satisfying a need of the consumer.)
What are some other things that influence sales?
(Price, season, and bargains.)

(Marketing activities.)

(8) You can buy 500 model airplanes for 5¢ each. Planes like this frequently sell for 15¢ each. How would you decide if you should buy these planes and try to re-sell them?
(Set a price or prices that would assure a profit. Then survey the potential market to determine demand. Factors in this market would be age and sex (boys).)

(9) You think that a class yearbook might sell. You have all of the materials needed to produce the yearbook and an estimate of the cost of each copy. What should you do next? How would you go about this?
(Survey the class. Ask a sample of the class if they would buy the yearbook. Ask the student if he would survey other classes, parents, and teachers. Why would or wouldn't he? E.g., parents of non-class members probably would have little interest while parents of class members might.)

(10) You have 500 model airplanes you purchased for 5¢ each. How would you create a demand for these planes?
(Advertise. Where? Posters in school, flyers, school paper, and local radio. Any media that would inform the potential consumer and not be too expensive. Contests of demonstrations of the plane would also apply.)

(11) You are a member of a school club which decides to sell candy bars to earn some money. How can you inform the students and teachers that these candy bars are being sold? List as many ways as you can think of.
(Advertise. School paper, posters, tell your friends, school intercom, and any other media that will get the message to the potential consumer.)

(12) List the different ways you have purchased products. One example would be your purchase of candy from a clerk in a store. List as many other ways products are sold as you can think of. (Candy can be purchased as noted above from a clerk, or from candy machine, Girl Scout (door-to-door), or by mail order. This question should bring out the fact that goods and services are sold in various ways.)

(13) You have made ten bird houses to sell. How would you go about selling these bird houses to your neighbors? (Door-to-door with a specimen bird house. Why? Quickest and least expensive way to advertise and sell the product he has.)

(14) List all the different ways candy bars are sold. (This is very similar to #10 and should bring out the sales by clerks, vending machines, door-to-door, and catalog.)

(15) Give two ways you could increase the sales of electric guitars. (Reduce price (promotion), advertise, or increase the services you give such as free guitar lessons. Increase demand by starting guitar bands.)

(16) You are buying a transistor radio. One model cost \$9.95 and has no guarantee. The second model costs \$10.95 and has two year guarantee. Which would you buy? Why? (The one with the guarantee if I was at all doubtful that the first radio would last two years. Bring out the point that guarantees help to attract customers.)

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(17) You purchase a package of kool-aid. The package has instructions for mixing the contents with water and sugar. What value are these instructions? Do they help sell the kool-aid? Why? (Help to produce a good drink. Probably, since people would not purchase something they did not like. Bring out the point that instructions help to sell products since they lead to successful use of the product. Also point out that instructions are given in several forms--on the package, operator's manuals, salesmen's instructions, and service courses are examples.)

f. (Summarize marketing activities with the overhead transparency on marketing. Dial each activity in turn as you read the narration below.)

(1) Market analysis: Since people buy to satisfy their needs, business has to find out what consumers want.

(2) Advertising: People must know that products are available. Also, they must be encouraged to buy.

(3) Sales: Ownership of the good or service has to be transferred to the consumer.

(4) Service: Successful use of the product increases customer satisfaction and thus improves sales.

(5) (Review the definition of marketing.)

C. Application

(Relate the importance of marketing to the financial success of any enterprise and show why marketing is needed.)

1. Did primitive man need marketing? Why? (No, he consumed what he produced.)

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2. When did marketing come into being?
(When man produced more than he consumed. This was closely tied with specialization. When one man specialized in making clothing he had to market the clothes he did not use and buy food, shoes, etc. Point out that marketing fills a need for distributing the products produced by specialists to people who have a varied needs and desires.)

3. What would have happened to American Industry in Unit I if we had done a poor job of marketing? Why?
(Could have lost money since sales would have been less. Also, point out that only those products that the class thought they could sell (market) were produced.)

4. Is General Motors concerned with marketing? How can you tell?
(List the many marketing activities carried on by General Motors. For example, television advertising, brochures on cars, authorized dealerships, 50,000 mile warranty, and operator's manuals.)

5. How did Pronto Pre-fabs go about marketing its homes?

6. Is (give the name of a local firm) concerned with marketing? How can you tell? What affect does marketing have on this business?
(Bring out all of the marketing activities of this firm and their influence on the financial success of the firm.)

D. Summary

1. (Review the attributes of marketing. Project OT: Marketing without overlay wheel.)

OT: Marketing

2. (Point out typical marketing activities.)

3. (Note that marketing is an important part of industry since it helps to move goods and services from the producer into the hands of the consumer.)

V. Evaluation

A. Write your definition of marketing in the space below.

B. Which of the following products would be easiest to sell to one of your classmates on a hot summer day?

1. Sweater
2. Candy bar
3. Bottle of pop
4. Overshoes

C. Which of the following is not a marketing activity?

1. Advertising in the local paper
2. Planning the production schedule
3. Planning the sales promotion for a product
4. Selling the product to a customer

Unit V
Lesson 1
Activity

Activity to identify why people buy products and the activities industry uses to market their products.

Directions:

1. Make a photographic ditto of the activity pages.
2. Run enough copies so that:
    - a. A copy or copies can be cut up so that each student in the class will receive one problem.
    - b. Each student will receive a complete list of all the problems to guide his note taking during discussions.
3. Cut one or more copies of the activity so that each student will have an individual problem to consider. Since there are only 17 problems, two or ~~more~~ students may have the same problem.

Unit V
Lesson 1
Activity

Name____________________
Date____________________

A. Why do people buy goods and services?

1. How much after-shave lotion could you sell to your classmates?

2. List two items you bought recently. Why did you buy them?

3. How much lipstick could you sell in this class? Why?

4. How many ice skates could you sell to your classmates in June? Why?

5. How many wooden pencils could you sell at $3.50 each? Why?

6. How many ball point pens could you sell for a nickel a piece? Why?

7. If you sold candy bars one for 10¢ and two for 15¢, which price would sell the most candy bars? Why?

B. Marketing activities

8. You can buy 500 model airplanes for 5¢ each. Planes like this frequently sell for 15¢ each. How would you decide if you should buy these planes and try to re-sell them?

9. You think that a class yearbook might sell. You have all of the materials needed to produce the yearbook and an estimate of the cost of each copy. What should you do next? How would you go about this?

10. You have 500 model airplanes you purchased for 5¢ each. How would you create a demand for these planes?

11. You are a member of a school club which decides to sell candy bars to earn some money. How can you inform the students and teachers that these candy bars are being sold? List as many ways as you can think of.

12. List the different ways you have purchased products. One example would be your purchase of candy from a clerk in a store. List as many other ways products are sold as you can think of.

13. You have made ten bird houses to sell. How would you go about selling these bird houses to your neighbors?

14. List all the different ways candy bars are sold.

15. Give two ways you could increase the sales of electric guitars.

16. You are buying a transistor radio. One model costs $9.95 and has no guarantee. The second model costs $10.95 and has a two year guarantee. Which would you buy? Why?

17. You purchase a package of kool-aid. The package has instructions for mixing the contents with water and sugar. What value are these instructions? Do they help sell the kool-aid? Why?

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor____________________ Date________________

Unit Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________

6. Which activity did you use?____________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain____________________

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________ ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

____

LEVEL I - American Industry
UNIT V - Distributing Products and Services: Marketing
Lesson 2 - Pricing and Its Influence on Sales (1 period)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Calculate the cost of a product, determine the profit in a given sales price, and be able to describe the effect price has on sales volume. He will also be aware of the fact that most products sell at a profit.

II. Scope

Basic but simple pricing decisions will be explored by the student within the context of products he has produced to date in the class or is familiar with from his general experiences. This lesson will relate price, demand, and profit.

III. Resources

A. Instructional media

1. Place a listing on the blackboard of the various expenses involved in producing the product used as an example in this lesson. You will also have to give the number of products produced. This may be the product made in Unit I, Unit IV, or a separate example.

2. Ditto the data needed for IV, B, 5.

B. Literature

1. Student booklet, Distributing Products and Services, pages 51-57.

2. Basic Marketing: A Managerial Approach, E. Jerome McCarthy, 1964, Richard D. Irwin, Inc., Homewood, Illinois, pages 773-804

IV. Content Outline

A. Introduction

1. (Use the product produced in Unit I or Unit IV for this activity. If these, for some reason, are not suitable, select another product. Then determine six to eight selling prices for the product. Make the lowest selling price somewhat lower than the cost of the product. The highest selling price should be very high. Draw the x- and y-axis of a graph on your blackboard so that you can plot your students answers as they are given. Place demand on the y-axis and price on the x-axis. Now you are ready to ask the following questions.)

    a. How many of you would buy___(product)___ at a price of___(highest price)___?

    b. How many would buy___(product)___at a price of ___(next highest price)___?

    c. (Continue on with the questions until you have plotted all of the answers.)

2. From looking at this graph, what would you say is the relationship between the price of a product and the demand for it? (The higher the price the less the demand.)

B. Activity and content

1. Should we sell the___(product)___at the lowest price to give us a lot of sales?

2. If the cost per___(product)___is___(cost)___, can we sell at the lowest price? Why? (No, would cause a financial loss. Point out the definition of industry.)

3. What price should be selected? (Can eliminate the lowest price since it results in a loss. After discussing the other prices, consider the next question.)

4. What are some things that we should consider after we have eliminated the price which is below cost and the real high price?

  a. (How much will a person be willing to pay? This is related to the importance of the need to be satisfied and the degree to which it is satisfied.)

  b. (Does the consumer have any alternative ways to satisfy this need at a lower cost? (Competition.)

  c. (How many products can we make? (Production.)

5. (Give the students the data on expenses involved in producing the product. These expenses should include labor, equipment, materials, supplies, and marketing costs. If you covered fixed and working capital in the finance unit, bring these points out to your students. In either case, tie back to the finance unit in this activity.)

  a. (Have each student do the following:)

    (1) (Calculate unit cost of the product.)

    (2) (Select an appropriate price--one that gives a profit and results in adequate sales.)

  b. (Discuss some of the prices selected by the students. Look for and point out.)

    (1) (Prices at less than cost. Show expense of miscalculations.)

    (2) (Prices that are too high in terms of the need and competition.)

    (3) (Emphasize that price must return a profit and be appropriate to the need.)

. What happens when you find that you cannot sell a product for more than what it costs to produce it?

  a. (Can quit making it. However, this might ruin your business.)

  b. (Can reduce production costs. Show here the relationship between pricing in marketing, finance, procurement, and production.)

C. Application

1. Why did the (product) we produced in Unit I sell? (Satisfied a need at a price the consumer was willing to pay.)

2. Why would people buy a Pronto Pre-fab home? (Need shelter and this would be an economical way to satisfy this need.)

D. Summary

1. In general, we can say that the price of a product has to be low enough to encourage customers to buy it and high enough to return a reasonable profit to the producer.

V. Evaluation

A. Why do you often wear tennis shoes instead of high quality leather shoes? List as many reasons as you can think of.

B. What would be the best price to charge for washing a car. The soap for each wash job costs 3¢, the warm water 15¢, the cold water 10¢, and wiping clothes and other necessary items cost 10¢ per car. Labor costs $2 an hour and 1/2 hour of labor is required per car.

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor ______________________ Date ______________

Unit Number ________ Lesson Number ________ Date Lesson Started ________

1. Amount of time used to complete lesson (to nearest ½ class period) ______

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain ______________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain ______________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain ______________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain ______________

6. Which activity did you use? ______________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain ______________

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ______________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain __________
____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain __________
____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references __________
____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor __________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made __________
____

LEVEL I - American Industry
UNIT V - Distributing Products and Services: Marketing
Lesson 3 - Know What Your Consumers Want (2 periods)

Stout State University
Summer, 1967

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I. Objectives: At the conclusion of this lesson the student should be able to:

Identify the basic purposes and common techniques of market research. He will be able to identify salient characteristics of students that will influence their purchase of products and be able to conduct a simple market survey.

II. Scope

An enterprise's need for information on its customers' wants and desires is described in this lesson. The student is shown how the characteristics of a product guide him in selecting a sample for his survey. In addition, the student is introduced to the procedures used in conducting a simple market survey. The summary relates these market analysis procedures to industry and the research concept. If there is time, an activity is given which applies these knowledges to a class problem.

III. Resources

A. Instructional media

1. Enough half-sheets of paper to give one to each student in your class.

2. Sample sweatshirt with your school emblem on it. (If you can obtain one.)

3. Copies of the activity if you are going to use it.

4. OT: Marketing: Research.

B. Literature

1. Student booklet, Distributing Products and Services, pages 4-10.

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IV. Content Outline

A. Introduction

1. What did we do in Unit I to determine how many products to produce? Why? (Surveyed the market, to find the demand for our product.)

2. Why did Wes write a questionnaire and ask people to answer the questions on it? (See page 6 in student booklet, Distributing Products and Services. He wanted to find out what people wanted or needed in a house.)

3. Why do products sell? (Review for previous lessons. To satisfy a need of the customer.)

4. Why is it important to ask potential customers about our product? (We have to find out what their needs are in relation to the product and h how we can best satisfy this need.)

5. How can we find out what the customer thinks about our product? (Project OT: Marketing: Research.)

OT: Marketing: Research

a. (Show him a sample or model and ask him questions.)

b. (Show him a picture and ask him questions.)

c. (Use a questionnaire with the media listed in a and b.)

d. (Try to sell the product. This can be very expensive if the product does not sell. Most businesses avoid this if they can.)

B. Activity and content

1. Let us take a closer look at the things we should consider when we survey our market.

a. Whom did you contact in the market survey conducted in Unit I? (Some possibilities are students, parents, store owners, teachers, and the general public.)

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b. Why did you ask only these people?
(They appeared to be the most likely customers because their needs were in line with the value of the product. For example, a pennant satisfies the need to identify with the school and its athletic teams.)

2. Does the product give any clues as to what people to contact with the market survey?
(Yes, it satisfies certain needs. Then we have to identify people with these needs.)

3. What people should we contact with a market survey with the following products? (Bring out the need the product satisfies and what people have these needs.)

   a. (Your school) sweatshirt.

   b. (Your school) yearbook.

   c. Coasters.

   d. Pre-fab homes (families or heads of families).

4. If we are going to sell sweatshirts with our school emblem on them, should we contact all the people who might buy with our survey?
(Could, but this would take a lot of time.)

5. Let's see if there is an easier way of finding out what the demand will be.

6. (Give each student a slip of paper and ask him to indicate if he would buy this sweatshirt for a reasonable price. State the price if you can.)

   a. (Collect the slips.)

   b. (Randomly pull one-fourth or one-half of them from the pile. Do this in full view of the class.)

7. Now I have what is called a sample of the responses of your group. I have selected by chance (one-fourth or one-half) of your responses. I did this by chance to avoid any bias in my selection. Let us see if the sample will give us an accurate picture of the demand for sweatshirts in this group.

a. (Count the slips and place the number of those willing to buy on the board.)

b. (Multiply by 2 or 4 depending upon whether you had one-half or one-fourth of the group in the sample.)

c. (Count the demand in the entire group by counting all the slips and determining how many would purchase the product.)

d. Let us compare the two ways of determining the demand.

(1) (Sample is cheaper to take but could be biased.)

(2) (Total survey is expensive and sometimes impossible to do, but it usually gives a more accurate estimate of demand.)

8. Since there are (no. of students) in our school, can we say that (____% of students in class willing to buy) times (total number of students) will buy these sweatshirts? (Not unless this is a representative class. But, how about other grade levels and girls?)

a. Thus, we can only generalize or apply the demand in our sample to groups of people like those in our sample.

b. If you asked your friends whether they would buy this sweatshirt, could you generalize to the entire school? (Probably not since friends are a select subset of the entire school population.)

9. How then should we go about selecting our samples?

a. (Determine need satisfied by the product.)

b. (Identify the groups of people likely to have this need. Students and within this group; sex and grade levels. Alumni, teachers, parents, and general public.)

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c. (Select samples from each of the groups likely to have need for the product.)

10. What information can a survey of consumers bring out?

a. (Have students review what Wes asked in his survey questionnaire on page 6 in the student booklet, Distributing Products and Services.)

b. (What information could we obtain on our sweatshirts when we conduct our survey?)

(1) (General demand is an obvious answer.)

(2) (Colors desired.)

(3) (Sizes required--long, short, small, medium, larger, etc.)

C. Summary

(Main points of knowing your customers and relationship of market survey to research.)

1. Why do we survey our customers?
(Find out their needs.)

2. How do we go about conducting this survey?
(Bring out points listed in the lesson.)

3. How does a survey help industry to market its products?
(Industry can better satisfy the needs of its customers when it knows what the need and want is.)

4. How do the procedures used in conducting the survey relate to our concept of research?
(Bring out that a survey has to be unbiased, systematic, and provide facts related to a marketing problem.)

5. Why are questionnaires often used in surveys?
(Make the survey more systematic--i.e., ask the same questions in the same way to everyone contacted.)

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D. Activity to apply the content of this lesson

1. (If you have the time, about one class period, to use the ensuing activity, you should ditto the activity sheet for distribution to your class. See Item #3 for further instructions.)

2. (If time does not permit the use of this activity in this unit, you may find the activity sheet useful for your market survey in Unit VII.)

3. (Use of the survey activity:)

   a. (Select a good or service to be the product in your survey. List this on the activity sheet. In some classes you may want to have more than one product. Some possible products are:)

      (1) (Product produced in Unit IV.)

      (2) (School dance.)

      (3) (School yearbook.)

      (4) (Attendance at away from home ball games.

      (5) (Number who intend to try out for an athletic team.)

   b. (Distribute the activity sheets to your students. Have small groups work on the activity.)

   c. (Consult with them on their problems.)

   d. (Check their survey plans and questionnaire before they actually run the survey.)

   e. (Evaluate their output in relationship to the degree they have considered the factors brought out in this lesson.)

   f. (Discuss the results with your class.)

V. Evaluation

A. What type of person would be most likely to buy a football?

B. You included one-half of your classmates in a sample for a market survey. You found that 15 in the sample would buy the product. What is the total number of products you could expect to sell?

1. 7
2. 15
3. 30
4. 45

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Unit V
Lesson 3
Activity

Name________________________
Date________________________

KNOW YOUR CUSTOMERS

Before a business can decide what to produce and how much to produce, it must have some idea of how many products it can sell. In order to do this, the enterprise must know the needs of its potential customers. Market survey is a technique frequently used by industry to find out what consumers' needs are. In this activity you will design a survey and then conduct it. If you follow the steps listed in this activity sheet, you should not have many problems. Ask your instructor for help with problems you cannot solve.

I. The product is __________________________.

II. What consumer's needs will this product satisfy?

____

____

III. What people are likely to have these needs? (Boys, girls, parents, teachers, etc.)

____

____

IV. What groups of people should we include in our sample for the survey?

____

____

V. What questions should we ask them? (See student booklet, Distributing Products and Services, pages 4-8.)

____

____

VI. Should we use a questionnaire? If so, what should it be like?

VII. Describe your plan for conducting the survey, whom you will contact, and what questions you will ask.

VIII. Have your instructor check your survey plan.

IX. Conduct the survey.

X. Estimate how many products could be sold to the various groups sampled.

XI. Questions:

A. Why do we survey consumers?

B. What does industry do with the information they collect in surveys?

C. Why do we use a sample in our survey?

D. How is the procedure used in designing and conducting this survey similar to the procedures used in research?

E. What are we trying to find in a market survey?

LEVEL I - American Industry
UNIT V - Distributing Products and Services: Marketing
Lesson 4 - Convince People to Buy: Advertising and
Sales (2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

List the two functions of advertising--informing consumers and convincing people to buy. He will also be able to identify the sales techniques and appeals used in his community. In addition, he will be able to construct advertising and sales techniques for a product produced by a student enterprise.

II. Scope

In this lesson the student will go into some depth in the activities and techniques of convincing people to buy products. Advertising and sales will be the focus of the study. If time permits, the students will construct advertising and a sales program for a given product.

III. Resources

A. Instructional media

1. SS: Advertising.

2. Activity on constructing advertising and sales program.

B. Literature

1. Student booklet, Distributing Products and Services, pages 10-23.

2. Resource Material, Marketing, S.M. 9.0/3-9.0/4.

IV. Content Outline

A. Introduction

1. How many of you would buy a bottle of pop from me for a nickel?

2. Why didn't you ask to buy a bottle of pop from me when you entered the room?
(Didn't know you had any to sell.)

3. How many people asked to buy a (the product sold in Unit I) from you before we advertised them for sale?
   (Probably very few since they did not know the product was available.)

4. What, then, is one of the first steps in selling a product?
   (Informing the consumers the product is for sale.)

5. One way to inform people about products is through advertising.

B. Activity and content

(Selling the product through advertising and personal sales techniques.)

1. What information does the prospective customer need on a product?
   (Show SS: Advertising. A discussion guide will accompany this series.)

   a. (When and where product can be purchased.)

   b. (Uses of product.)

   c. (Cost of the product.)

SS: Advertising

2. Informing a prospective customer that a product is available will not guarantee a sale. You must encourage him to buy. As you view some samples of advertising, see if you can identify the basic idea in each set of ads.
   (Show the overhead transparencies to bring out the following sales appeals. Use questions to draw these from your students.)

   a. (Bargains.)

   b. (Utility.)

   c. (Quality.)

   d. (Satisfaction of senses.)

   e. (Sociability--need to be part of a group--and school spirit.)

   f. (Curiosity or mystery--be different, try something new or exotic.)

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3. How are these ads brought to the consumer? Or, where do you see ads?
(Some of these will be recognizable in the transparencies.)

   a. (Newspaper.)

   b. (Television.)

   c. (Magazines.)

   d. (Billboards.)

   e. (School paper.)

   f. (Radio.)

   g. (Packages on products.)

   h. (Others suggested by students.)

4. How many of you read Fortune?

5. If I wanted to advertise to attract your attention and cause you to buy a product, would I be wise to place the ad in Fortune?
(No, if they do not read this magazine they would not see the advertising.)

6. Where would be a better place to put this ad?
(Something they read.)

7. We will have to use the information we have on our potential consumers to select the best way to get the advertising to them.
(In other words, media they will come in contact with.)

8. In summary, two basic principles of advertising are:

   a. Show that your product does an effective job of satisfying a consumer's need.

   b. Be sure the potential customers receive the message in the advertising. This is a communication process.
   (Briefly relate this back to the communication concept previously studied.)

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9. Once we have attracted the attention of potential consumers and have encouraged them to buy, how can we close the sale?

   a. (Personal sale to customer.)

   b. (Mail order.)

   c. (Vending machine.)

10. What is the advantage of personal sales?

   a. (Flexible, can adapt the sales technique to the immediate need.)

   b. (Present to close the sale at appropriate point.)

   c. (Can advise the customers.)

11. What is the disadvantage of personal sales?

   a. (Expensive since one salesman can contact only a limited number of customers.)

12. What are advantages of mail order and vending machine sales?

   (Can cover more area; can create a larger volume of sales.)

13. What is the main disadvantage of mail order and vending machine sales?

   (Lack of flexibility in sales approach.)

C. Application

1. What sales method did Pronto Pre-fabs use? Why?

2. What type of advertising would Pronto Pre-fabs probably use? Why?

3. What would be good media to use for Pronto's advertising?

   (A media which would contact prospective home buyers.)

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D. Use one of the following activities to apply the ideas discussed in the first part of this lesson. This activity should build on what you have done in Lessons 2 and 3.

1. Develop the advertising and sales progress for the product produced in the last unit.
2. Contract the advertising and sales activities for another school organization such as the school yearbook.
3. If you are in an eighteen week program, develop the advertising and sales program for the Unit VII student enterprise.

E. Summary

1. In summary, the consumer must know that products are available, how they fit his needs, be convinced to purchase the products, and the sale must be completed.
2. (Use the following questions to bring out some of the relationships with other concepts.)
    a. How does research help in advertising?
    b. How is communication used in advertising?
    c. How do the materials used in a product influence advertising?

F. Assign your students the task of bringing an advertisement to class. Along with this ad they should include a paragraph on the appeal used and why the ad was placed in the specific media used. Make the due date the day of the first transportation lesson. This assignment will be used at that point to bring out the nature of transportation.

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V. Evaluation

A. Secure samples of advertising which depict various sales appeals. Use an opaque projector to show these to your students or use them as part of an object test. Ask your students to list the sales appeal(s) which appears in each advertisement.

B. What are the two main purposes of advertising?

C. Sketch an advertisement we could place in the school paper to sell _______*__________. *(Select a product such as a pennant which could be sold to the students in your school; however, choose one you have not previously used in your student enterprise or class discussion.)

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor________________________ Date________________

Unit Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain________________

6. Which activity did you use?________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain________________

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

____

LEVEL I - American Industry
UNIT V - Distributing Products and Services: Marketing
Lesson 5 - Satisfied Customers Buy Again (1 period)

Stout State University
Summer, 1967

12

I. Objectives: At the conclusion of this lesson the student should be able to:

List characteristics of the product, the sales act, and service which lead to satisfied customers.

II. Scope

This lesson requires the student to recall circumstances which have led him to make additional purchases from the same supplier. This information is then used to isolate the factors which influence customer satisfaction.

III. Resources

A. Instructional media

B. Literature

1. Student booklet, Distributing Products and Services, pages 20-25.

IV. Content Outline

A. Introduction

1. Where do you make most of your purchases? (Bring out fact that the student, or his parents, tend to make repeat purchases in many retailing enterprises.)

2. Why do you return to that business to make your purchases? (Because I am satisfied with their service.)

3. Customer satisfaction, then, leads to repeat sales. Today, we will study the acts that lead to satisfied customers.

B. Activity and content

1. What makes customers satisifed customers? (You may have to bring out the following points with some directed questioning that forces the students to examine their past experiences as consumers. Write the responses on the left side of the blackboard.)

a. (Friendly and helpful sales people.)

b. (Quality products.)

c. (Replacement of poor products.)

d. (Help or instructions in how to use or assemble such as with cameras, skis, and model airplanes.)

e. (Prompt repair of damaged or defective parts--bicycles for example.)

f. (Honest representation of the product.)

g. (Honoring guarantee.)

2. How can we sell (product produced in Unit IV or you could go back to Unit I and review) so that we have satisfied customers? (Bring out ways to satisfy as brought out in the previous question. Connect the solutions with the points listed on the left side of your blackboard.)

3. Activity

(Select one or more of the following depending on your circumstances.)

Activity

a. (Write a guarantee for the product produced in Units I or IV.)

b. (Develop a sales procedure for this product.)

c. (Write instructions for the care and use of the product.)

(These should be developed in light of the communication concept and the previous study of marketing.)

4. (Discuss samples of the materials developed in this activity. Look for the following points and emphasize them.)

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a. (That the guarantee will not be so broad and for such a long period of time that it is going to be too costly in comparison with the extra sales it brings in.)

b. (The sales procedure should provide friendly and prompt service. Also, it should permit the customer to obtain the needed service without excessive cost to the company.)

c. (Instructions should communicate to the customer. They should identify the proper use and care of the product.)

C. Summary

1. (Point out the marketing activities that produce satisfied customers.)

2. (Relate the importance of satisfied customers to the success of an enterprise. If your students' answers do not give evidence of a grasp of this concept, review as necessary.)

a. What would happen to General Motors if all of its car buyers became dissatisfied?

b. What would happen to local merchant if all of his customers became dissatisfied?

c. What would happen if Pronto Pre-fabs began to use inferior materials?
(Note the connection between the concepts of materials and marketing.)

V. Evaluation

A. List three marketing activities that lead to satisfied customers.

B. Write a guarantee for a pair of ear rings you could produce in the American Industry class.

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor__________________________ Date__________________

Unit Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)______

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain__________________

____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________________

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4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain________________________

____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain______________________________

____

6. Which activity did you use?______________________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items______________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain__________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain______________

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10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references______________

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11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor____________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made__________________________

____

LEVEL I - American Industry
UNIT V - Distributing Products and Services: Marketing
Lesson 6 - What's In A Name (1 period)

Stout State University
Summer, 1967

8.

I. Objectives: At the conclusion of this lesson the student should be able to:

Identify the reasons for using a trade name and the attributes of a good name.

II. Scope

This lesson introduces the student to the function a product name plays in marketing. It also looks at some of the symbolism used in these names.

III. Resources

A. Instructional media

1. SS: What's In A Name.

B. Literature

1. Forbes, February 1, 1966, "Colgate vs. P & G," pages 26-35.

IV. Content Outline

A. Introduction

1. (Call a student by name) will you move your chair to the (direction) .

2. How did (student) know I meant him? (You called him by name.)

3. What is one reason for each of us having a name? (Tell us from other people.)

4. What comes to mind when I say Bart Starr? (Best quarterback in pro-football.)

5. We see that reputations or the qualities of a person also go along with their names. For example, "He is another Bart Starr" would tell you that this person was a promising quarterback.

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B. Activity and content

1. If you have a name so we can tell you from other people and keep track of your performance, do products also need names? Why?
   (Yes, so the consumer can tell one product from another when they are similar--such as soaps, cars, etc. Also a name can be connected with the quality of the product so that the consumer can order by name. This improves communication with the sales person.)

2. What qualities should a product name have? (Use the slide series to bring out the following characteristics. You may have it shown several times. See discussion guide with slide series.)

   SS: What's In A Name

   a. (Distinctive: We want the consumer to be able to distinguish this product from others.)
   b. (The name should not become dated.)
   c. (The name should be easy to read and pronounce.)
   d. (The name has to have a positive sound and meaning.)
   e. (It must be easy to remember.)
   f. (Suitable for advertising media.)
   g. (Encourage the consumer to buy.)

3. Do the following product names fit these requirements?

   a. Baby Ruth.
   b. Citgo.
   c. Federal Savings and Loan.
   d. Honest George's Sixth National Bank.
   e. Quality Used Car Lot.
   f. Apache (a pick-up name used by Chevy. This name led to reduced sales to Indians who were once enemies of the Apachie. As a result, the nameplates were removed from the pick-ups sold to these tribes. Eventually this name was dropped.)
   g. Pronto Pre-fabs.

4. Activity

   (Have your students develop names and/or symbols for the product produced in Unit I or Unit IV.)

   a. (Discuss these names or a sample of these in light of the content of this lesson.)

   b. (Select a name for the product.)

C. Summary

   1. (Review the main points in the lesson. Use actual product names.)

V. Evaluation

A. Which of the following is not an important characteristic of a brand name?

1. Easy to remember
2. Distinctive
3. Hard to say
4. Meaningful

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

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Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor ______________________ Date ______________

Unit Number ________ Lesson Number ________ Date Lesson Started ________

1. Amount of time used to complete lesson (to nearest ½ class period) ________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain ______________________

____

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4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain ______________________

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5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain ______________________

____

6. Which activity did you use? ______________________

The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ________________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________

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9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ______________

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13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

____

LEVEL I - American Industry
UNIT V - Distributing Products and Services: Transportation
Lesson 7 - Transportation: Moving People and Materials From One Place to Another (1 period)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Write a definition of transportation which includes the following attributes: (1) planned movement, (2) of people or materials, and (3) from one location to another. He will also have a general awareness of the fact that transportation adds value to the article moved. Given names of local enterprises, he will be able to list transportation used by each and how transportation affects these enterprises.

II. Scope

This lesson starts with examples of transportation in the students' lives and how it influences their well-being. A definition of transportation is developed and then the students apply this to Wes's Pronto Pre-fab Company and enterprises in the local community to further refine the concept.

III. Resources

A. Instructional media

1. OT: Transportation.

2. Start a bulletin board on transportation. Select materials to depict the attributes of the definition of transportation.

B. Literature

1. Student booklet, Distributing Products and Services, pages 27-32.

2. Resource Material, Transportation, T. E. 2.0/1-2.0/16. This is general background information for the teacher for the transportation unit.

3. News media. This should be a rich source of everyday transportation problems and events.

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IV. Content Outline

(The introduction is dependent on the prior assignment to the students of the task of bringing an example of advertising from home to class. They must understand at the time of the assignment that they will be graded on their sample.)

A. Introduction

(The following questions relate to the advertising material your students were assigned to bring from home. Use these questions to bring out the movement of materials from one point to another.)

1. How did you get these samples of advertising to school?
(Bring out walked, drove, school bus or city bus, and list them on the blackboard between two points labeled "home" and "school."

Transportation Activity

Example: Home - - - (Walked) - - - School

Home - - - - - - School

Etc.

2. How did you bring these samples to class?
(Bring out the walking to class. Add another point to your diagram "classroom" and draw a line to "school." List walking above this line.)

B. Activity and content

OT: Transportation

1. We have just reviewed how you brought your assignment from home to class. Many ways were used to get these ads to class, however, they all accomplished one thing--they got the assignment to class. Actually, you were involved in transportation while you were bringing this assignment to class. (Project OT: Transportation without overlays.)

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a. Can you give me a definition of transportation from what we have discussed so far? (You will probably get something like "bringing or moving an object or item from one point to another." This is sufficient for this stage. You will shape it further in later questions.)

b. In the next few minutes we are going to analyze and summarize a number of your experiences in order to develop a definition of transportation. Note how this process proceeds. It can be a valuable tool for your thinking if you learn how to use it.

c. Is this definition complete?

(1) How did you get to school this morning? (Use same diagram as previously employed.)

(2) How did you get to class?

(3) How does your father get to work?

(4) How does your family get to your relatives?

d. Can we include people in our definition of transportation? (Yes, they are moved from place to place.)

e. What should our definition of transportation be? (At this point it should read the movement of people and/or materials from one location to another. Project overlay #1.)

OT: Transportation

f. Can we say anything more about the things to be considered in transporting an object or person? (The purpose of the following questions is to bring out the planned part of the definition employed by the Project.)

(1) What did you carry your assignment in? (Book, notebook, etc.) Why? (To avoid damage or loss.)

(2) Did you have any problems on the way to school? (Weather, flat tire, or late for bus?)

(3) Did you take a special route to school? (Yes, shortest, fastest, safest, etc.)

(5) Did you have any trouble bringing your assignment to class with you?
(Forgetting, crowded halls, locker would not open, etc.)

(6) Obviously, there is more to transportation than just moving materials or people from one point to another. In order to overcome problems like we have just mentioned, transportation has to be planned. You place a spare tire in your car to use when you have a flat. You plan to arise in time to catch your ride to school. You place your assignment in a notebook or a locker to avoid losing or damaging it. School buildings are planned to permit you to get to class quickly and you walk in the right side of the hall in order to improve the flow of traffic.

(7) Our definition of transportation now reads: (Place on blackboard.)

Transportation: The planned movement of people and/or materials from one location to another. (Project overlay #2.)

OT: Transportation

2. Did we use transportation in our student enterprise in Unit I?
(Yes, for example--materials from supplies to school to storage to work benches. Products from production line to storage to salesmen to customer. Add more to these as time and situation allow.)

3. Did Pronto Pre-fabs use transportation?
(See pages 27-32 and ask your students how Pronto salesmen might get around to see prospective customers.)

4. Why do we transport objects and people?
(Get them from one place to another.)

   a. Why do they have to be at this other place? For example, why did Pronto Pre-fabs want to transport their homes?
   (In order to sell them.)

b. Why do you transport yourself to school?
(Need to be here for an education. Bring out the need part.)

c. Thus, we see that there is a need involved in transportation. Objects and people are transported to fulfill a need. As industry becomes more specialized there is a greater need for transportation to take materials and products from where they are extracted or produced to where they can be consumed.

5. (Develop the idea that transportation adds value to a good or service.)

a. Was the sample of advertising worth more to you at home or here in class?
(Bring out that it is worth more in class since it will receive a grade. This is an example of the value added to a product by transportation.)

b. How did transportation help the financial success of Dick and Dan's lawn mowing business?

c. What value was transportation for Pronto Prefabs?

d. Did transportation add value to the product we made in our student enterprise in Unit I?

C. Summary and application

1. (Use the following problems to bring out the role of transportation in local and national industries. When possible relate your students' responses to the other concept areas. Also, evaluate their responses to see if their concept of transportation is accurate.)

a. Does (local super market) have to be concerned with transportation?
(List as many ways as you can bring out. Identify movement of people and materials within and to the store. For example, poor roads, heavy traffic, or lack of parking space could reduce his volume of business.)

(1) What influence does transportation have on finance for this business?

(2) What influence does it have on marketing?

(3) How could research be used to solve some of his transportation problems?

b. (Below are listed a number of enterprises. Present each and use questions similar to those above to bring out the role of transportation in each. Also, relate the other concepts of American industry to transportation in these problems.)

(1) Local gas station.

(2) Local drug store.

(3) General Electric.

(4) Ford.

(5) Northwest Orient Airlines (also bring out transportation to air terminal.)

V. Evaluation

A. Write your definition of transportation.

B. Name a local enterprise and ask your students to discuss the transportation used by the firm and how transportation influences the enterprise's business.

C. Which of the following is not a transportation activity?

1. Making a truck tire
2. Delivering groceries
3. Walking to school
4. Sending a letter to a friend

D. You are asked to deliver an object. Which of the following thoughts would be of least concern as you consider this task?

A. When do I take the object?
B. What is the best route to take?
C. How can I keep the object from being damaged or lost?
D. How was the object designed?

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

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Instructor________________________________ Date______________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain______________________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain______________________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain______________________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain______________________________

6. Which activity did you use?______________________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

____

(Be sure to fill out the items on the reverse side.)

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8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ______________________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ______________________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ______________________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______________________________

LEVEL I - American Industry
UNIT V - Distributing Products and Services: Transportation
Lesson 8 - Transportation Has to Be Planned (2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Identify the elements in transportation planning which provide for the efficient and safe transportation of materials or people from one place to another. In addition, he will be able to apply these to the American Industry laboratory and selected local industries.

II. Scope

This lesson defines several basic considerations in planning for efficient transportation of needed materials to appropriate destinations. The transportation of people is also considered within the context of these considerations. Several activities are suggested to apply the ideas in this lesson. One or more of them may be used with this lesson, or if time is lacking the ideas can be applied in Unit VII.

III. Resources

A. Instructional media

1. Eggs.
2. Packing materials.
3. One or two pound coffee cans with plastic covers.
4. Containers and boxes with instructions related to transit considerations. See B, 13, b.
5. Ditto copies of the sample receiving report.
6. OT: Transportation Planning.

B. Literature

1. Student booklet, Distributing Products and Services, pages 32-37 and 40-45.
2. Resource Material, Transportation.
3. News media. Read, watch, and listen for examples of poor planning in transportation. Incorrect destination, damaged goods, and late arrivals are examples.

IV. Content Outline

A. Introduction

(Use one of the following techniques to bring out the need for planning in transportation. Number 3 is suggested.)

1. (Use an obvious example of poor planning in transportation in the student enterprise in Unit I or the production activity in Unit IV.)

2. (Use a current event in transportation which gives evidence of poor planning.)

3. (Demonstrate one of the end processes on the product made in Unit IV or a process such as finishing. Have your demonstration planned so that you will have to send several of your students after supplies. Give them inadequate directions so that they have trouble locating these items. For example, tell a student to get some finish. When he asks where, tell him where it is--put it in a unique place before class. If he has trouble locating it, give him further directions on the location and the exact type of finish. Do this with several more students. Try to bring out problems in where to find materials and what to bring. Spend about 10-15 minutes on this phase.)

B. Activity and content

1. What transportation problems are involved in this example?
   (What to transport, where to find it; you will have to change this slightly to fit your example.)

2. Could we have transported these items more efficiently?
   (Yes, one student could have carried all the items in one trip in alternative #3.)

3. Did the lack of planning in transportation have any bad effects?

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4. How can we plan to be sure that the correct materials are moved to the proper place?
(Determine what is needed and where it is needed. Then write an order for the materials, make up a packing list, or fill out a routing form. Here is a good point to relate transportation to the concepts of communication, procurement, and production.)

   a. How did Pronto Pre-fabs do this?
   (See page 32.)

   b. What else was probably listed in the sales agreement?
   (Type of home, name and address of the buyer, and date of delivery.)

5. Are some of the same considerations involved in transporting people?
(Yes, for example, the students receive their class schedule with room numbers and class periods along with a floor plan of the school to help them get to the right place at the correct time. Similarly, a person who has to get to Los Angeles at a certain time would purchase an airline ticket to get him there in time. In doing this, he would consult airline schedules and select a flight that would get him to Los Angeles in time for his appointment.)

6. Does industry have to be concerned about anything besides the number of items to transport and their destination?
(Yes, preserving the quality of the objects transported. The next activity will bring this out.)

7. (Bring several eggs and one or two pound coffee cans to class. Also have packing materials such as saw dust, paper, foam rubber, shavings, sand, etc. Divide your class into groups of four or five and have them package an egg in a coffee can. When they are done, place the top on their can and test their packaging by dropping the cans on the floor and observing the results. Tie this in with the research concept. Determine the best package. Bring out the fact that eggs and other fragile articles have to be protected against shock. Also, ask your students whether their packaging would be appropriate for shipping 1,000 dozen eggs.)

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a. Would we have to be concerned about any other things when we transported these eggs? (Temperature and time in transit.)

b. Can you name some other products that require special care in transporting? Also, tell how you would transport them. (Examples--pop, prevent breakage of bottles; candy, prevent crushing and overheating; gasoline, keep away from sparks and fire; books, keep dry; etc. Note that care has to be taken to preserve the critical attributes of the product.)

8. Did Pronto Pre-fabs do anything to prevent damage to its homes? (See pages 33-35 in student booklet.)

9. We have just discussed actions taken to prevent damage to products as they are transported. Are similar actions taken to prevent injury to people when they are transported? (Yes, safety belts in airplanes and cars, padded interiors, and various accident prevention measures.)

10. When people or materials are transported several things can be done to make this transportation more efficient.

a. Groups of objects or people going to the same place can be transported together. Boxes of bolts or one bus instead of several carloads of people.

b. Load the objects or people to be moved directly into the transportation vehicle to be used. (Note that Pronto Pre-fabs loaded its homes directly from the production line to the trucks, page 33. Direct and rapid loading of people avoids waiting lines and crowding.)

c. Move materials or people by means of the most direct route possible.

d. Load materials in the opposite order they will be unloaded. See pages 36-37.

e. Store materials near where they will be used. (Note Pronto Pre-fabs.)

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11. We have been discussing some things to consider when preparing for and transporting materials and people. Transportation does not end there. Someone has to receive what is transported. Suppose that you are in a wholesale food enterprise. You have just received a shipment of five thousand crates of eggs.

    a. You must unload them. How? Are you going to keep a record of this transaction? How would industry do this?
    (See the sample receiving report on the next page.)

    b. How will you know if the eggs are good? The agent who delivers the eggs will ask you to sign a release. When will you want to do this?

    c. What provisions would you need to make for storing the eggs until they are disposed of? What general considerations must an industry make for storing objects?

    d. What considerations must you make in receiving the eggs, if you are to distribute them to other locations? Can you think of some instances when this is done? How is this handled?

12. (Apply receiving and storage ideas to Pronto Pre-fabs.)

    a. How did Pronto Pre-fabs make sure its shipments were correct and undamaged?
    (See pages 40-43 in student booklet.)

    b. What storage facilities did Pronto Pre-fabs have? Why?
    (See pages 43-45 in student booklet.)

    c. What influence did Pronto's storage facilities have on procurement? On relationships? On production?
    (See pages 43-45 in student booklet.)

13. In this lesson, we have learned that transportation has to be planned. Planning starts with deciding what to move and where to move it. Next, planning considers the safety of the object moved. Then plans are made to make the moves efficient. Finally, plans are made for receiving transported materials or people and to provide spaces for them until they are moved again. In all stages of this planning, communications has an important part.)

RECEIVING REPORT

From:

Date____________________

Transported Via____________

No. Packages______________

Invoice No.________ Purchase Order No._________ Requisition No. ___________

Condition:____

Article	No.	Rejects	Stored	Sent To

Received By_____________________________

Inspected By____________________________

Remarks_________________________________

____

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a. Pre-transit.
(Use samples of these from school or your student enterprise.)

(1) (Sales contract.)

(2) (Requisition.)

(3) (Purchase order.)

(4) (Packing slips.)

(5) (Package designs.)

(6) (Tickets--passenger.)

(7) ("Flight #452 leaves at Gate 9 on the blue concourse in 15 minutes.")

(8) (Cite examples from your lab activities.)

b. Transit.
(Use actual packages and signs for this.)

(1) ("Keep cool.")

(2) ("Store in a dry place.")

(3) ("This end up.")

(4) ("Fragile.")

(5) ("Fasten Your Safety Belts.")

(6) ("Deliver to Ajax Manufacturing Company
123 First Street
Yourtown, Wisconsin.")

(7) (Cite examples from your activities in your lab.)

c. Post-transit.

(1) (Receiving reports.)

(2) (Directions for unloading and storage.)

(3) (Cite examples in your lab.)

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C. Summary and application

1. Review the attributes of planning discussed in this lesson. (Project OT: Transportation Planning.)

    a. (What to transport and where to move it.)

    b. (How to move it without damaging it.)

    c. (How to efficiently transport it.)

    d. (How to receive and handle it when the movement is completed.)

2. (Select two or three local industries and discuss the planning involved in transporting people and materials in and outside of their enterprises. For example, the supermarket has an unloading dock with easy access to a street. Carts and aisles for the shopper's convenience, etc.)

3. (If you have time, use one of the following activities to reinforce the ideas presented in this lesson. If your time is short, application can be made in Unit VII; however, you will have to review this lesson before you assign your students to planning transportation activities in Unit VII.)

    a. (Plan how the transportation activities in the student enterprise in Unit I could have been improved.)

    b. (Plan how the transportation activities in the Unit IV could have been improved.)

    c. (Plan the remaining transportation activities for the product produced in Unit IV.)

    d. (Plan how transportation could be improved to, within, and from your school.)

    e. (Plan how the transportation activities of a local firm could be improved.)

OT: Transportation Planning

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V. Evaluation

A. If you were going to transport television picture tubes, what planning would you have to do?

B. Cars have seat belts to help provide safe transportation for people. Which of the following is used in the same way for transporting an object?

1. Refrigerated car
2. Receiving report
3. Collapsable steering wheel
4. Packing slip

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

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Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor________________________ Date________________

Unit Number_______ Lesson Number_______ Date Lesson Started_______

1. Amount of time used to complete lesson (to nearest ½ class period)_______

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain________________

6. Which activity did you use?________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain________________

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain____________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain____________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references____________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor____________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made____________

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I. Objectives: At the conclusion of this lesson the student should be able to:

List transit methods which involve muscle action, mechanical action, gravity, pressure, and inertia. He will also be able to make some simple comparisons between these methods on the basis of speed, volume, route, and cost.

II. Scope

This lesson introduces the student to several means of moving objects by means of selected concrete experiences in the American Industry laboratory. These ideas are then extended to local enterprises and comparisons are made on the basis of speed, volume, route, and cost.

III. Resources

A. Instructional media

1. OT: Transportation Methods.

B. Literature

1. Student booklet, Distributing Products and Services, pages 37-40.

2. Resource Material, Transportation, 2.0/11-2.0/16. Use this only for data on methods of transportation. Controls are discussed in the next lesson.

IV. Content Outline

A. Introduction

(Give your students actual experiences in moving materials and products in the shop. Use muscle action to pick up and move objects. Then use mechanical action through the use of simple machines such as the lever, dolly, carts, hand truck, or power conveyor to move the same objects. Also, use gravity to move some objects. For example, when your benches are swept the shavings move to the floor as a result of gravity. Also, parts can be placed in boxes in this way. If you have pipes and a fan or a pump, you can involve your students with transportation by means of pressure.)

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B. Activity and content

1. What ways did we move objects?
(List these on the blackboard. Muscle action--lifting, carrying, handling, etc.; mechanical action--carts, hand trucks, power conveyors, elevators, dollys, and simple machines such as the lever; gravity--chutes, slides, filling boxes, and moving materials to the floor; pressure--fan to move air, dust, or powdered materials. Show OT: Transportation Methods. Discussion guide accompanies series.)

OT: Transportation Methods

2. What are some of the advantages and disadvantages of each method we used to transport objects? (Write these after the methods you have already listed on the board.)

   a. Muscle action? (Advantages--quick, no need to wait for mechanical devices; flexible, human muscle action is available where a person is. Disadvantages--limited strength and limited source of energy.)

   b. Mechanical action? (Advantages--carry larger loads, more power. Disadvantages--may not be flexible, for example you need paths for carts, trucks, and a fixed space for conveyors.)

   c. Gravity? (Advantage--make use of a natural source of energy and thus reduce expenses. Disadvantage--object must have potential energy and be in a position where gravity can operate.)

   d. Pressure? (Advantage--move materials against resistance and gravity, such as petroleum, water, and air. Disadvantages--some objects cannot be easily moved by pressure.)

3. Can people be moved by the same methods? (Yes, for example, muscle action--walking; mechanical action--cars, bicycles, airplanes, elevators, scooters, etc.; gravity--slide, jumping down, walking downstairs, etc.; pressure--hovercraft.)

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4. (See discussion guide for OT: Transportation Methods.

5. What ways did Pronto Pre-fabs use to move objects? (See pages 37-40 in student booklet.)

6. What ways do you suppose Pronto used to transport its employees? Why? (Bring out speed, number of people, routing, and the cost.)

   a. (Salesmen.)

   b. (Workers in the plant.)

   c. (Wes to a national convention of pre-fab home builders.)

   d. (Workers to and from work.)

7. How do other concepts of industry relate to transportation? Name a concept and give one way it is related to transportation.

   a. (Energy--provides power needed to transport.)

   b. (Finance--transportation costs money.)

   c. (Property--facilities have to be designed to allow for transportation.)

   d. (Research--development of new or improvement of old methods of transportation.)

   e. (Procurement--securing necessary transportation equipment.)

   f. (Relationships--reduce transportation efforts of workers.)

   g. (Marketing--efficient movement reduces costs.)

   h. (Management--transportation has to fit the goals of the company.)

   i. (Production--materials and people have to be moved during production.)

j. (Material--materials have to be moved.)

k. (Processes--depend on materials being in place and ready to process.)

C. Summary and application

1. How are the methods of transportation just studied used in local industries? (Identify the methods used.)

    a. (Local super market.)

    b. (Local gas station.)

    c. (Local manufacturing firm.)

    d. (Local farm.)

2. (If you have time assign one of the following activities. They can be for class discussion, assigned to buzz groups, or homework. In addition, you might use all three and assign each one to a sub-group of the class.)

    a. (List the following transportation problems on the blackboard.)

        (1) (Watermelons from a field to the back of a truck.)

        (2) (Hay bales from the back of a truck to the top of a hay pile.)

        (3) (Water from a dam to a field for irrigation.)

        (4) (Oil from an oil well to a refinery.)

        (5) (Oil from a distributor to your home.)

        (6) (Logs to a saw mill.)

    b. (Ask students to suggest transportation methods involved in each case. List these on the blackboard.)

c. (Ask students to identify similar methods. The end results should be the identification of muscle action, mechanical action, gravity, pressure, and inertia.)

d. (Analyze a local industry to determine the transit methods used. They should also include the ideas discussed in the first two transportation lessons--need for transportation and the planning involved. In addition, if you are going to use the next and last lesson in transportation, have them include the controls on transportation in their analysis.)

e. (Have your students study the transit methods used in your Unit I and/or Unit IV activity and suggest better methods or the application of some methods not used.)

f. (Have your student apply transit methods to the distribution of the product made in Unit IV.)

V. Evaluation

A. Display or project pictures of transit methods. Ask your students to identify the transit methods used.

B. What is an advantage of using muscle action to transport an object?

1. No special apparatus is needed
2. Carry large loads
3. Gives quick transportation over long distances
4. Requires a special path on which to move

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

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14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made________________________________

____

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I. Objectives: At the conclusion of this lesson the student should be able to:

List common examples of limitations and regulations which affect transportation in industry and state how these influence local enterprises.

II. Scope

This lesson introduces the student to a selected set of human, natural, and facility limitations along with government, union, and company regulations which influence transportation. The main intent is to develop an awareness of factors which control and regulate transportation.

III. Resources

A. Instructional media

B. Literature

1. Student booklet, Distributing Products and Services, pages 27-28 and 45-49.

2. "Aviation--The Crowded Skies," Time, March 31, 1967, pages 52-63. Good resource on the need for air traffic controls, the FAA's (government) role in this control, and research being done.

3. "Over the Road to Denver," by Kent Koberstcen, Picture Minneapolis Tribune, May 14, 1967, pages 4-10. Describes and illustrates several controls on trucking.

4. News media. Watch for stories on such topics as weather, human limitations, physical facilities, government regulations, company policies, and union acts which exercise some control on transportation.

5. Drivers license manual.

IV. Content Outline

A. Introduction

(The objective of this portion of the lesson is to establish an awareness in your students that there are limitations and regulations on transportation. Use examples that are current and closely related to your students' experiences in introducing this lesson. For example: recent bad weather; new hall regulations in school; traffic, accidents, or congestion in town; or school regulations on the use of cars could be utilized to introduce your students to this lesson.)

1. (Bring out a school or community regulation which influences transportation.)

2. (Bring out a natural limitation on transportation such as weather or terrain.)

3. (Bring out a human limitation such as energy, strength, or reaction time.)

B. Activity and content

(Establish that there are regulations to promote safety and efficient transportation. Also, establish that there are a number of limitations on transportation that influence when an object can be moved, where it can be moved, and how it can be transported.)

1. Regulations.

   a. How many of you rode to school this morning? (The vehicle could be a car, truck, bus, bicycle, or motor bike depending on the age of your students.)

   b. (Ask a series of questions to bring out the regulations obeyed.)

      (1) How fast did you go in town? Why?

      (2) What side of the street did you drive on? Why?

      (3) What did you do when you came to an intersection? Why?

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(4) (Ask similar questions until your students are aware of the common traffic regulations they observe each day.)

c. What are these traffic regulations and laws made for?
(Safety.)

(1) Are there any other reasons for these laws?

(2) What would happen if people could drive on either side of the road according to what pleased them?
(Travel time would be greatly increased if not impossible.)

(3) We can see the same need for traffic rules here in school. When students wander down the middle of the halls, walk in groups, and stop to talk in the middle of traffic everyone is slowed down.

(4) Thus, we see there is a need for traffic rules and regulations in order to protect the people and materials being moved and to make these moves more efficient.

d. What regulations did Pronto Pre-fabs have on transportation? Why?
(See pages 47-49 in student booklet.)

(1) Did Pronto Pre-fabs have any company policies which placed a limit on transportation?
(See pages 27-28. Note the 150 mile limitation on free transportation. Relate this restriction to the finance concept.)

e. What transportation regulations did we have during our production run in the last unit?
(No running in laboratory and line up for dismissal.)

2. (Limitations: Establish that there are limitations which influence when, where, and how materials or people can be transported. List these on the blackboard.)

a. How many (heavy objects) could you carry to (distant point)?
(Bring out that a person's energy is limited. Also note the relation of the enrgy concept here to transportation.)

b. If I asked you to take a book to the library, what would you have to do to get it there? (Bring out that he would have to walk down the aisle, through the lab door, down the hall--make it clear to your students that they would have to transport the book according to the design of the physical facilities.)

c. If we had produced 50,000 (product in Unit I or Unit IV), how could we load them on a train for transportation to (city) ? (Since you are not on the railroad line, you would have to transport these products to the railroad. If you do not have a loading dock or a driveway up to your lab, point this out. From this discussion you should bring out: (1) physical facilities of your enterprise can limit transportation, (2) routes and terminals of transportation companies can limit transportation--point out the interrelationship with property here, and (3) need for mechanical and other sources of energy to load and transport these products.)

d. Could we have flown these products directly from here to (city) ? Why? (Bring out that you have no landing field along the school. You would have to truck them to an airport large enough to handle transport planes. Also, bring out the cost or finance concept here as a reason you probably would not use air freight. However, you should note that some products which have a short life, such as cut flowers, are profitably shipped by air freight.)

e. What transportation problems could weather cause? (Use recent snow, rain, or sleet storms as examples. Also, very cold or warm temperatures. Bring out how these conditions influence transportation of materials and people.)

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f. We have just listed a number of things that limit transportation in your lives and in our student enterprise. Your energy, the design of this building, the weather, cost of transportation, and the transportation devices or vehicles available all have some control on the way you transport yourself or your belongings. Thus, you usually consider these things when you plan your transportation. Let us review the American Industry student booklet, Distributing Products and Services, to see if Pronto Pre-fabs has some of the same problems and plans to solve them in an effective manner.

(1) (See pages 45-47.)

(2) (Point out the solution to the limitations.)

(3) (Ask your students to apply some of these ideas to your lab, especially in relation to the production the class has done.)

C. Application and summary

(One or more of these should be used in the summary discussion of your lesson. Similar problems could be used for an assigned paper.)

1. (Identify controls on transportation. Use illustration of truck on freeway.)

   a. (State regulates of speed of travel--speed signs.)

   b. (State regulates amount carried by the truck--weighing stations.)

   c. (Interstate Commerce Commission regulates what is carried. Define the ICC.)

   d. (Driver and truck stamina regulate how far the truck goes in one day.)

2. (Name one or more local enterprises. For each do the following:)

- a. (Have students name as many controlling factors as they can. List these on the blackboard.)

- b. (Have students group or identify similar controls to get a few classifications. Regulations, etc.)

- c. (Discuss the general characteristics and reasons for the controls in each of the classifications.)

3. (Select a local industry and make a study of transportation in that industry. Your student could write a report explaining transportation in his chosen industry. The report should conform to the following general outline.)

   - a. (Introductory statements.)

   - b. (Why "X" industry needs transportation.)

   - c. (Pre-transit activities that I observed at "X" industry.)

   - d. (Transit principles used at "X" industry.)

   - e. (Post-transit procedures used at "X" industry.

   - f. (How transportation is controlled at "X" industry.)

V. Evaluation

A. Which of the following would not be a restriction on transportation?

1. Design of the factory
2. Coffee break for employees
3. Snow storm
4. Research into the causes of highway accidents

B. What would be the best way to move 2,000 bushels of potatoes from here to Chicago?

1. Automobile
2. Train
3. Truck
4. Plane

C. You are going to ship milk to New York. What restrictions and regulations on transportation would you study before you started?

LEVEL II
LESSON FEEDBACK

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Unit Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)______

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________________

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4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain________________________

____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________________

____

6. Which activity did you use?____________________________

The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

LEVEL I - American Industry
UNIT VI - The Future of Industry
Introduction

Stout State University
December, 1967

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I. General Objectives

As we reflect upon the accomplishments of man we can note great changes he has brought about. American industry is a part of this change and can be traced through its development of new products and services. Consider our present production systems which include automation and cybernation. Will we be able to analyze the present, reflect upon the past, and then predict the future?

II. Activities

The activities in these lessons are designed to allow the students to examine the advancements with respect to our present state of the art, then project their ideas into the expected advancements of American industry.

III. Evaluation

Evaluation items have been provided at the end of most lessons. When the teacher develops additional evaluation items, a copy should be sent to the American Industry Project.

IV. Instructional Media

The use of instructional media has been suggested for the following lessons. In some cases the media is optional, therefore, each lesson should be reviewed to determine whether a film or other media will be used.

Lesson No.	Media
1	FS: The Future of Industry (A.I.)
3	Film: Film pertaining to automation
4	Film: Automation
5	FS: Future of Industry

LEVEL I - American Industry
UNIT VI - The Future of Industry
Lesson Layout

Stout State University
December, 1967

Lesson No.	Periods Required	Lesson Title
1	1	The Future of Industry: Introduction
2	2	Man's Progress
3	2	Viewing An Enterprise
4	4	Efficiency and Automation
5	1	Beyond Automation

LEVEL I - American Industry
UNIT VI - The Future of Industry
Lesson 1 - The Future of Industry: Introduction (1 period)

Stout State University
Summer, 1967

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I. Objectives: At the conclusion of this lesson the student should be able to:

   A. Reflect upon the accomplishments of man and logically predict some of man's future accomplishments.

   B. Indicate areas of industry that are expected to expand through the development of new products.

II. Scope

This lesson introduces Unit VI, The Future of Industry. By reflecting upon the past and considering the present, the student should envision an exciting and gainful future.

III. Resources

   A. Instructional media

      1. FS: The Future of Industry (A.I.).

      2. First level film catalog.

   B. Literature

      1. American Battle for Abundance, Charles F. Kettering and Allen Orth, 1955, General Motors Corporation, Detroit, Michigan.

IV. Content Outline

   A. Introduction

   (As an introduction to Unit VI the teacher should explain the objectives of this unit.)

      1. Unit VI, The Future of Industry, is basically concerned with:

         a. The industrial advances of man and some expected advancements of the future.

         b. State-of-the-art and the reasons why man has made changes.

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c. Automation, principles and practices.

d. Cybernation and examples of its uses.

e. Relating the future of industry to the demands of the customer.

B. Activity and content

(NOTE: The teacher will find it necessary to plan for outside activities, reports, and laboratory activities. In some instances four to seven days lead time will be required. Distribute student booklet, The Future of Industry.)

1. The following is a description of the major events of each lesson. Assignments and other plans will be made while discussing these events today.

   a. Lesson 1: Today we will overview this unit, The Future of Industry. Also, a film strip of the same title will be shown and discussed.

   b. Lesson 2: Tomorrow, if time is needed, we will continue the discussion about the film strip and find why man has advanced to the level of today. Read pages 1-12 for tomorrow's assignment.

   c. Lesson 3: On the following day ( ) we will visit a local enterprise and the next day ( ) we will relate the production technique of that enterprise to others with or without automated equipment.

   d. Lesson 4: Then we will spend about four class periods examining our lab equipment with automation in mind. We may automate some piece of lab equipment, or build a model or prototype piece of automated equipment. Individuals or teams may do this. The equipment will be demonstrated. Then we will proceed one step further, in lesson 5, to cybernation (spell this for the students). Who would like to locate some information about cybernation? How about automation?

e. Lesson 5: If time permits, the last day of Unit VI will be spent discussing cybernation (spell it for the students). Let's all look for something to report on concerning cybernation for this lesson. A test will also be given during this class period.

2. After the teacher has overviewed the lessons of Unit VI he should follow the directions for showing the filmstrip and discuss it.

FS: The Future of Industry.

C. Conclusion

1. In concluding this lesson the teacher should make the following points:

   a. Man has become very efficient as compared to his forefathers. But, with our population growth he will be forced to produce even more.

   b. Industry produces more goods and services as the public demands them. In some cases as basic needs, in others as luxury items.

   c. Industry competes by producing the best product or service for the lowest cost to the customer.

   d. The future of industry depends upon our ability to develop.

2. Remind the student about the reports for lesson 2, the next lesson.

V. Evaluation

(Evaluation items for all of Unit VI will be included in the last lesson of this unit.)

LEVEL I
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor____________________ Date_______________

Unit Number_______ Lesson Number_______ Date Lesson Started_______

1. Amount of time used to complete lesson (to nearest ½ class period)______

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain_______________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain_______________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain_______________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain_______________

6. Which activity did you use?_______________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items____________________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain____________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain____________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references____________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor____________________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made______________________________

LEVEL I - American Industry
UNIT VI - The Future of Industry
Lesson 2 - Man's Progress (2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

A. Identify some significant advancements man had made which can be cited as improving our standard of living.

B. Base a prediction of future expected advancements upon facts of the past.

II. Scope

This lesson is concerned with some simple research by each student. It allows each student to briefly study an area of interest and make some predictions based upon his knowledge.

III. Resources

A. Instructional media

1. First level film catalog.

B. Literature

1. Student booklet, The Future of Industry, pages 1-12.

2. Check literature for information about the "Futurists."

IV. Content Outline

(NOTE: If time is required to complete lesson 1, complete it before starting this lesson.)

A. Introduction

Have each student select and do some research in the preparation of a written or oral report concerning one or more of the concept areas. An attempt to include information from all concept areas should be made. This information might include automation, related to automation, technological advancements as related to materials and/or processes, etc.

Assign three to four days prior to this lesson. Give each student a copy of Activity #1 when assignment is made.

Unit VI
Lesson 2
Activity #1

Name ______________________________ Date ____________________

1. My prediction(s) are concerned with ____________________________

2. I predict the future events or discoveries as being ______________
____
____
____
____
____
____

3. The above prediction(s) are based upon the following _____________
____
____
____
____
____
____

4. What influence will this have on you as a:

A. Worker ____
____
____

B. Consumer ____
____
____

3

1. Today we will discuss the information you gathered earlier. We will each make some predictions of future happenings or discoveries, but with some logical reasons why we feel the discoveries will be made.

2. We will need someone to record our predictions (select someone to record each student's predictions).

3. These predictions will be dated and duplicated for each member of the class. In a few years you may start to notice the fulfilling of these predictions.

B. Activity and content

1. Have all, if possible, students present their predictions and discuss each briefly.

2. Have notes made by someone for later duplication and dissemination to the class. Each student should give the form for Activity #1 to the teacher at the end of the class period.

3. The teacher should lead the discussion to a conclusion that man is becoming more efficient--through automation, through research in the areas of materials, processes, marketing, procurement, etc. However, he should bring out the commonalities in all phases of progress. He should also identify some reasons why our standard of living is high.

C. Conclusion

1. In concluding this lesson the teacher should discuss the salient points brought out by his class. These should include the predictions that seem most defendable and have logic and facts to support them.

2. Finally the lesson for the following day should be discussed.

3. During our next lesson we will visit the local business of __________________________________. The purpose is to view a business in actual operation. I would like to have each student be able to identify some particular functions in this business.

Notify the students two or three days prior to the field trip.

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4. We will view this business from the standpoint of what we have read or know is happening in similar businesses. Are they with or behind the state-of-the-art? Also, in what way might they function in the future?

5. Tomorrow each of you will receive a form that will help you identify the basic things we are looking for (see next lesson for forms).

V. Evaluation

(See the last lesson of this unit for evaluation items.)

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this Lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor______________________________ Date____________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)_______

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________
____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________
____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________
____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________
____

6. Which activity did you use?____________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items______________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain__________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain________________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references________________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor____________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made__________________________

____

LEVEL I - American Industry
UNIT VI - The Future of Industry
Lesson 3 - Viewing an Enterprise (2 periods)

Stout State University
Summer, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

A. Identify ways in which a company has become more efficient and ways in which greater efficiency was achieved.

B. Relate the functions of an enterprise (vistied and/or studied) to the concept of automation.

II. Scope

This lesson will allow the student to see an enterprise in operation. In this way he can evaluate an enterprise with a conceptual framework of industry in mind.

III. Resources

A. Instructional media

1. First level film catalog.

B. Literature

1. Student booklet, The Future of Industry, pages 13-18 and 27-32.

2. Automation, Buckingham, 1961, American Library, New York.

IV. Content Outline

A. Introduction

1. (To start this field trip the instructor should give any final instructions pertaining to school regulations governing field trips.)

2. (He should also provide each student with a list of items from which to take notes. Some of these items are:)

a. Did you notice any automated equipment? If so, what?

b. What type of equipment do you think the automated has replaced?

c. Was most of the automated equipment in the office areas or in the production areas? Why?

d. Did you find places where automated equipment could replace the non-automated? Where?

e. Would this automated equipment replace any people? Does automated equipment replace labor? What happens to these people? (Point out that people are replaced and that this can cause hardships for these individuals. This is one reason why retraining programs are needed and why a person needs to continue his training after he has obtained a job.)

f. Do you feel that your suggested equipment would pay for itself? Why?

3. (This list shows some questions that can be reproduced for your students. However, each instructor should pattern his questions around the enterprise being visited.)

B. Activity and content

1. (On the day following the field trip the class should discuss their answers to the questions concerning the field trip. Have each student discuss his answers in class, then hand in all answer sheets for the teacher's information.)

Discussing the field trip.
Start here on the second day of this lesson.

2. (From this discussion, other reading, and the students' responses to the field trip questions, some ideas as to designing and/or automated equipment should be developed.)

Refer to field trip questions

3. (Finally, the discussion should lead to automated or semi-automated equipment.)

4. The next lesson will involve some developing of simple automated equipment.

   a. If the students are going to become familiar with automation and its benefits, then each should take part in one of the following activities.

b. Through drawings, pictures, or sketches, demonstrate a means of automating part of a production system. This could be done with more elaborate systems that could not be built (by model or prototype) in the laboratory.

c. However, in some cases the students may wish to build the automated equipment in the laboratory. In all cases value analysis should be applied.

5. (It is suggested that the instructor use the next four days for this activity.)

C. Conclusion

1. This lesson has been devoted to analyzing the information gained through the field trip, then applying it to other ways of automating equipment for more efficient production.

2. To conclude this lesson the instructor should ask the students to consider their assignment of determining what equipment they plan to automate or explain and demonstrate a method of automation.)

This assignment could be made three or four days in advance.

3. In considering the assignment for tomorrow each student should consider the following:

a. What equipment have I seen that has been or could be automated?

b. Could I develop a simple automated system? This could be in the form of a model, prototype, demonstrating through sketches, or explaining by using such things as erector sets or tinker toys.

V. Evaluation

(See the last lesson of this unit for evaluation items.)

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor________________________________ Date____________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________

____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________

____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________

____

6. Which activity did you use?____________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items______________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain__________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain______________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references______________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor__________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made________________________

____

LEVEL I - American Industry
UNIT VI - The Future of Industry
Lesson 4 - Efficiency and Automation (4 periods)

Stout State University
Summer, 1967

4

I. Objectives: At the conclusion of this lesson the student should be able to:

  A. Identify some basic principles involved in automated systems.

  B. Describe ways in which industry might use or be using automated equipment.

  C. Show and/or explain how simple automation could be used in the school laboratory.

II. Scope

This lesson allows the student to see how automated equipment operates and why it may or may not be considered efficient.

III. Resources

  A. Instructional media

    1. First level film catalog.

  B. Literature

    1. Student booklet, The Future of Industry (periodic reference).

    2. Automation, Buckingham, 1961, American Library, New York.

IV. Content Outline

  A. Introduction

    1. This lesson involves the assignment made earlier. Each of you should have been considering what automation really is. It was brought out and defined in our American Industry booklet, The Future of Industry.

Make this assignment three to four days prior to this lesson. Ref. to Items A, 3; A, 4; and A, 5 of this lesson.

2. (Briefly discuss automation, definition, and principles. Ref. pages 6-12; 13-16; and 21-25. Also the vocabulary section.)

3. We have read and discussed the booklet, The Future of Industry. We have seen some examples of automation and the way it affects us. Today I will be asking each of you to describe, in about one minute, your proposed automation idea.

4. (The assignment for this lesson should have been made about three to four days prior.) The assignment is based upon earlier study of American industry, field trips, and laboratory experience. Be prepared on ______(day)______ to show how you plan to solve a simple problem related to automation. This could include any of the following:

    a. Design and show through sketches or pictures how a piece of equipment might be automated.

    b. Sketch and build a simple automated device.

    c. Describe, using any equipment or aids available, a simple automated system. This could be in a local enterprise, our school, or our laboratory.

    d. Show and describe an automated system used in industry.

This information could be reproduced for the students.

5. The teacher should state how the students may spend the following four or five periods needed to complete this lesson. He may allow them to use other school labs, the American Industry lab, and the library.

B. Activity and content

1. To start this lesson the instructor should discuss all proposed automation plans with the class. At this point he may find that some student ideas fit closely together, therefore, making a team approach more feasable for some proposals.

2. Several examples of automation may be found in the students' proposals. The instructor should pay close attention to the complexity of each proposed activity. If the activity requires more than four days to complete, the instructor must determine whether it is worth the additional time.

3. Before the various activities have been accepted, the student, or team of students, should have drawings, pictures, or sketches showing the instructor their plans.

   Then apply value analysis by asking the following questions:

   a. What is the purpose of this item?

   b. What could replace it?

   c. Could it be simplified?

   d. What is the cost of the change? (Cost may not be very important in most cases.)

4. After simple value analysis has been applied the student or team of students is ready to proceed.

5. All remaining days, except the last, of this lesson should be spent solving an automation problem. (Reference A, 5 of this lesson.)

6. On ______(day)______, the last day of this lesson, we will hand in the problem explanation. However, the class period will be spent watching demonstrations and explanation by selected students or teams.

C. Conclusion

1. In concluding these activities, some students may require help in completing their activities. This is an ideal opportunity for those students who are finished to help, but mainly it will allow more students to become more acquainted with other ideas of automation.

2. On the last day of this lesson, the students should present their automated equipment or reports. While the student is giving his presentation, the listeners should make notes of questions they wish to ask following the presentation. The presentation should not be interrupted by questions from the class.

3. Following the presentation, the instructor should ask the students to give him the reporting information, written report, and sketches and drawings.

4. Teacher: Summarize the lesson pertaining to automating in your class by reviewing the objectives of each lesson. This should include the following basic ideas:

    a. The relationship of a student's concept of automation before starting this unit should be compared with his concept of automation afterward.

    b. The identification of ways in which the student finds for applying automation.

    c. Reasons and ideas concerning more efficient production in the future should be brought out through man's need for more food and his demands for better products and services.

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V. Evaluation

(See the last lesson of this unit.)

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor______________________________ Date____________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________
____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________
____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________
____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________
____

6. Which activity did you use?____________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items____________________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain______________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain____________________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references____________________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor____________________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made________________________________

____

LEVEL I - American Industry
UNIT VI - The Future of Industry
Lesson 5 - Beyond Automation (1 period)

Stout State University
Summer, 1967

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I. Objectives: At the conclusion of this lesson the student should be able to:

A. Define cybernation and give some examples of its use in industry.

B. The remainder of this lesson is concerned with evaluation.

II. Scope

This lesson takes the student one step beyond automation, to cybernation. It also provides time to evaluate the learning that has taken place in Unit VI.

III. Resources

A. Instructional media

1. FS: Future of Industry.

B. Literature

IV. Content Outline

A. Introduction

The assignment for today (given the first day of the unit and reminded later) concerns cybernation.

The students should have been reminded of the cybernation assignment about two days prior.
FS: Future of Industry.

B. Activity and content

1. Review FS: Future of Industry.

2. Who can define cybernation or cybernetics?

3. Define cybernetics as a process in which one machine controlls another and may utilize feedback information in doing it.

4. Give some examples of cybernation as it might be found in industry today.

C. Conclusion

1. (After discussing cybernation for about 15 or 20 minutes, conclude by defining it and giving some examples.)

2. (The last part of this class period will be used for evaluating what we have studied in Unit VI.)

3. (Proceed with the evaluation. Discuss:)

   a. What is the underlying cause of the development of automation and cybernation? (Search for productivity.)

   b. What effects has this had on industry? (Require more capitol, more skilled workers, produce more products at more competitive prices.)

   c. What effects will it have on industry?

   d. What effects will this have on you? (Need for more training, continuous training, more products available for consumption, more leisure time, others?)

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V. Evaluation

A. Place a (+) by those statements that are true and a (o) by those statements that are false.

+ for true, o for false.

_____ 1. Compared to his forefathers, man has become an efficient producer of goods and services.
_____ 2. There are certain luxury items that each of us must have.
_____ 3. Nearly every small business should try to buy a small computer in order to automate.
_____ 4. Scientists have predicted the raising of fish in offshore sea pens.
_____ 5. Our standard of living remains about the same as it is today.

B. Multiple choice--select the most correct answer.

1. Man lived thousands of years without technology. This means that he had:

   a. Few tools
   b. Little or no machinery
   c. Not much "know-how"
   d. All of the above

2. The future of man depends upon his ability to:

   a. Produce goods
   b. Produce services
   c. Provide for his basic needs
   d. Change the weather

3. Our country has more cars, more food, better clothing, and better homes than other countries. This indicates that we have:

   a. More food than we need
   b. A high standard of living
   c. Enough food to feed the world
   d. A need for more highways

4. A computer can:

   a. Process information rapidly
   b. Add and subtract
   c. Store data
   d. All of the above

5. The average work week of the American worker is:

   a. Less than forty hours
   b. Less than thirty hours
   c. More than forty hours
   d. About fifty-four hours

C. Completion and essay questions.

1. Identify five technological advancements man has made in recent years.

   a.

   b.

   c.

   d.

   e.

2. Based upon the past progress of man, identify five accomplishments we might expect in the future.

   a.

   b.

   c.

   d.

   e.

3. In your own words, define automation and give an example of its use.

4. In your own words, define cybernation and give an example of its use.

1 5. Give three reasons why industry continues to expand.

   a.

   b.

   c.

'5

6. What do the expected changes in industry mean to you as a future worker in industry?

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor____________________ Date______________

Unit Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain______________________________
____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain______________________________
____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain______________________________
____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain______________________________
____

6. Which activity did you use?______________________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain__________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain_______________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references_______________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made____________________

____

LEVEL II
UNIT FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this unit, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor____________________ Date____________

Unit Number________ Date Started________ Date Completed________

1. The approximate time spent in laboratory was______%.

2. Generally, this unit was found to be (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain________________

3. The general unit objectives were (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ impossible to meet, (e) ☐ too broad, (f) ☐ too restrictive. If (c), (d), or (e) explain________________

4. Generally, the activities were found (a) ☐ adequate, (b) ☐ not suited to the lesson(s), (c) ☐ not enough of them. If (b) or (c) explain________________

5. The student booklet (a) ☐ provided enough background reading for the students, (b) ☐ should have contained more information, (c) ☐ did not fit together with the lessons. If (b) or (c) explain________________

6. The instructional media for this unit was generally (a) ☐ effective, (b) ☐ ineffective.

(Be sure to fill out the items on the reverse side.)

7. Did you make any changes in the lesson sequence or contents in this unit? (a) ☐ yes, (b) ☐ no. If you checked (a), please describe the changes.

____

____

8. Give a general summary of your feelings about this unit. Include the strong and weak points you found.

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LEVEL I - American Industry
UNIT VII - The Students' Business Venture
Introduction

Stout State University
December, 1967

I. General Objectives

At the conclusion of this unit the student should be able to apply the concepts of American Industry by setting up a simple student enterprise. It should include the organization of the enterprise, selection and development of a product, plus the fabrication and marketing of the product.

In operating the student enterprise he will strive to show business principles which involve the concepts of American Industry. Some examples are: purchase price affects profit; we do not produce what cannot be sold; inefficient production means lower profit; and research can develop products that satisfy human needs.

Through practical application the students will experience the thrill of becoming a part of American industry. As part of their learning experience, they will be allowed to succeed or fail with their business venture.

II. Activities

The activities in this unit are related to the development and operation of an enterprise. Although the student enterprise is relatively small, it provides experiences similar to those in American industry.

Because this is the final unit, the students should be able to carry out the establishment and operation of the student enterprise with minimal direction from the teacher.

III. Evaluation

Evaluation items have been placed at the end of the lessons. However, the teacher should develop additional items to meet the evaluative needs of his course. Copies of the added evaluation items should be sent to the American Industry Project.

IV. Instructional Media

The use of instructional media has been suggested for the following lessons. In some cases the media is optional, therefore, each lesson should be reviewed to determine whether a film or other media will be used.

Selected industrial films of a general nature should be especially meaningful in presenting this final unit.

A. Films.

Lesson	Concept Area
1	Films that illustrate the overall operations of an enterprise.
2	Films related to design, drawing, and facilities.
4	Market analysis.
6	Production systems.
8	Processes.
9	Packaging.
10	Marketing.

B. Other media.

Lesson	Title
1	OT: Partnership OT: Individual Proprietorship OT: Corporation
6	Ditto Copies of the Laboratory Layout
10	SS: Advertising OT: The Selling Process

LEVEL I - American Industry
UNIT VII - The Students' Business Venture
Unit Layout

Stout State University
December, 1967

Lesson No.	Periods Required (36 Wks.)	(18 Wks.)	Lesson Title
1	3	1	Developing a Student Enterprise
2	5	Omit	*Product Design and Development
3	2	Omit	**Feasibility of Producing
4	3	Omit	***Is the Product Marketable?
5	2	2	Systems Development
6	3	3	Selection and Design of a Production System
7	3	3	Getting Ready to Produce
8	8	5	Production According to Plans
9	2	2	Packaging a Product
10	2	1	Marketing the Product
11	1	1	Selling the Product
12	1	1	Evaluating our Business Venture
13	2	2	Concluding the Course

*This was done in Unit III.
**This was done in Unit IV.
***This was done in Unit V.

LEVEL I - American Industry
UNIT VII - The Students' Business Venture
Lesson 1 - Developing a Student Enterprise (3 periods)

Stout State University
Fall, 1967

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I. Objectives: At the conclusion of this lesson the student should be able to:

Identify the needs of the student enterprise, select the type of ownership appropriate to the student enterprise, and prepare an administrative structure, including personnel, to be used by the enterprise.

II. Scope

This lesson should serve as a reminder to the students of the importance and place of American industry in society. They should become aware of the excitement and challenges of actually starting and operating a business in an attempt to make a profit. Finally, they should realize that this final unit will allow them to apply the knowledges learned in earlier units.

III. Resources

A. Instructional media

1. Films that illustrate the overall operations of a business should be used.

2. OT: Partnership.

3. OT: Individual Proprietorship.

4. OT: Corporation.

B. Literature

1. Student booklet, The Student Industry, pages 1-22.

2. The Practice of Management, Peter F. Drucker, 1954, Harper and Row, New York.

3. Industrial Organization and Management, Bethel, Atwater, Smith, and Stackman, 1962, McGraw-Hill, New York.

4. Other reading is identified in the bibliography of the student booklet, The Student Industry.

5. Refer to Lessons 10, 11, 12, 13, 14 and 15 of Unit III for additional information.

IV. Content Outline

A. Introduction

1. In this unit the class will be provided an opportunity to apply what has been learned this year.

2. You will identify the needs of an enterprise (with reference to the student enterprise) in order to function.

   You will structure the student enterprise.

   You will identify the products(s) to be produced and sold.

   You will fabricate the product. (Product means goods or services.)

   You will package and market the product.

   Finally, you will evaluate your company, dissolve it, and declare a profit or loss.

3. What will your first step be?

   (The students should bring up the idea of organizing and getting money in order to operate.)

4. (The teacher should allow the students to identify their needs. This should include everything required to set up a company plus make and sell a product.)

5. What will our objective be?

   (To produce a product for a profit.)

6. What will we need in order to meet this objective?

   (The students should identify such needs as:

   a. An organization which includes people and property under a certain type of ownership.

   b. Money, we could sell stock.

c. *Equipment*--the school laboratory.

d. A *selected product* to produce. (Point out that this is based on consumer need(s).)

e. *Drawings* and *specifications*.

f. *Materials*.

g. A *production line*.

h. A *market* for our product, etc.)

B. Activity and content

1. In Unit III we studied about the ways in which a business is organized. We decided that a company *would not* be formed unless a product (which includes goods or services) is to be produced.

2. Let's decide upon a product or products that might be produced in our laboratory by our American Industry company.

(Get *ideas* from the students. Emphasize that these products must satisfy a need. If time permits, the design and drawings should be done by the students. However, if you are short of time, suggested products may be found at the end of this unit. Identify the proposed product ideas on the chalk board.)

Get some proposed product ideas.

3. Now that we have some idea as to what we will produce, what is our next step?

(The students should mention a formal organization and that money is needed to operate the company.)

4. (The teacher should refer to the organization developed earlier during the year and to the student booklet. Page 11 has an organization chart. Be sure that your students are aware of *various* ways in which businesses organize. Your class will use *one* method of organization.)

The students should have read pages 1-22 in the student booklet.

5. We are ready to organize our company--except for one thing. *Who will own it*? What does your student booklet say about ownership?

6. (The class should mention the basic types of ownership: (a) proprietorship, (b) partnership, and (c) corporation. Turn to pages 3-8 and discuss the advantages and disadvantages of each form of ownership. Use the three overhead transparencies in this discussion.)

OT: Partnership.
OT: Individual Proprietorship.
OT: Corporation.

7. What form of ownership would be best for our company?

   (The corporate form should be discussed as the form of ownership which is best suited for your class.)

8. (Once you have decided upon establishing a corporation return to page 11 of the student booklet, pages 9-22, and decide upon the positions to be filled in order to meet the needs of your company. The teacher should serve as the "board of directors."

9. (Next the students should elect the company president. After electing the president the teacher may wish to have students apply for the other positions. If time does not permit applications and interviews, all officers could be elected at that time.)

Elect or select officers.

10. (After the officers have been chosen, the remaining jobs should be filled. Each student, after reading pages 11-18, should make known which job he would prefer. Again, if time permits the students may submit applications and be interviewed. If not, ask the students which jobs they would prefer and have the officers select them. See Unit III, Lesson 12, page 3 for a work experience/work desired form.)

11. (Select a company name.)

12. Earlier we said that money was essential in order to operate our company. Where shall we get it? (Stock) Why sell stock?

    (See next page for sample stock records and certificates.)

13. (While preparing to sell stock the Articles of Incorporation can be prepared, pages 21-22 in the student booklet.)

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(The Vice President of Administration and his staff are responsible for the stock sales, Articles of Incorporation, and the keeping of records. See pages 12-15 in the student booklet.)

14. (Sell stock to each class member and draw up the Articles of Incorporation.)

15. (Prepare and display the organization chart with names of personnel included. This should remain on display until the company is dissolved.)

16. (Job descriptions--see pages 9-19 in student booklet.)

    (Have a meeting of the company president and all vice presidents. Establish the general working procedures and responsibilities of each. Use the student booklet as a guide. Also, start thinking about the plans for a product to be made by your student enterprise. The Research and Development Supervisor should start preparing sketches and drawings immediately if a product is being completely developed. If not, use drawings from the end of this lesson.)

17. (All students should be asked to help identify products that could be produced by your student enterprise. They can submit them to the Vice Presidents and their supervisors. Later the decision will be made as to which product(s) should be produced. This decision will be based upon information gained in the feasibility and market studies.)

C. Conclusion

1. (In concluding this lesson review what has been done in the past few days. Make sure that your president and vice presidents have job descriptions for themselves and those working with them. Make sure that each person understands his function in the company. And finally, make sure that you as a teacher have read and thoroughly understand the procedure outlined in this and other lessons of this unit.)

2. Guest speaker from industry.

   (If time permits ask two speakers to come in and describe the personnel required and sequence followed in producing their product. One speaker should come from a goods producing firm and the other should represent a service producing firm.)

o. ____________

____

____

ate ____________

o. of Shares ____________

ompany ____________

____

ost/Share ____________

otal Cost ____________

ssued By ____________

____

No. ____________

This certifies that ____________
is the owner of ______ shares of capital stock

of ____________ This stock is transferrable only on the books of the company by the holder thereof in person upon the surrender of this certificate properly endorsed.

In witness thereof, the said corporation has caused this certificate to be signed by its duly authorized officers and to be sealed with the seal of the corporation this ______ day of ____________, A.D. 19 ______

____
Secretary

____
President

---

o. ____________

ame ____________

____

ate ____________

o. of Shares ____________

ompany ____________

____

ost/Share ____________

otal Cost ____________

y ____________

____

No. ____________

This certifies that ____________
is the owner of ______ shares of capital stock

of ____________ This stock is transferrable only on the books of the company by the holder thereof in person upon the surrender of this certificate properly endorsed.

In witness thereof, the said corporation has caused this certificate to be signed by its duly authorized officers and to be sealed with the seal of the corporation this ______ day of ____________, A.D. 19 ______

____
Secretary

____
President

9C

V. Evaluation

1. What is the basic objective our our student enterprise?

2. What does your share of stock mean with respect to your relationship to the company?

3. Sketch a chart showing the organization of your company. Show the vice presidents, president, stockholders, board of directors, and supervisors. Also show where you fit into this organization. (Make this sketch on a clean sheet of paper.)

4. Describe your job.

5. Tell what might happen if your job is not done properly.

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this Lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor________________________ Date________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain________________________
____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain________________________
____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain________________________
____

5. The content outline (a) ☑ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information.
If (c) and/or (d) explain________________________
____

6. Which activity did you use?________________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ______________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ______________

____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ______________

____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ______________

____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______________________

____

LEVEL I - American Industry
UNIT VII - The Students' Business Venture
Lesson 2 - Product Design and Development (5 periods)

Stout State University
Fall, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Design and prepare a simple set of drawings and specifications for a product to be produced by the student enterprise. He should understand the relationship of the product to the layout of facilities.

NOTE: Lesson 3 may be started when about half finished with this lesson. The activities will then run simultaneously.

II. Scope

Students should understand the steps required to produce a product. However, when designing a product they must also realize the limits of their laboratory facilities. This lesson will allow them to discover both.

III. Resources

A. Instructional media

Films related to design, drawing, and facilities can be used.

B. Literature

1. Student booklet, The Student Industry, pages 23-28.

2. Use the design and drafting books in your school library.

3. Plant Layout and Design, James M. Moore, 1962, The Macmillan Company, New York.

IV. Content Outline

A. Introduction

1. (In presenting this lesson the teacher should refer to the communications lesson in Unit III and the drawings used in Unit I.)

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2. (Each student should be assigned the task of identifying a product that could be produced by the American Industry class in the laboratory. It should include a way of communicating the proposed product to the teacher and class. This might be through sketches, pictures, drawings, or specifications. Each student should be given about three to five minutes to present his idea. Then the class should select the best three.)

Assign this about one week prior to teaching this lesson. NOTE the products discussed in the previous lesson.

B. Activity and content

. (During the time this lesson is being completed the feasibility study of the next lesson, Lesson 3, should be started. Teams of students, along with the students who designed the products, could start the feasibility study. See the next lesson for the procedure to be followed in doing the feasibility study.)

2. (The class should complete the drawings at this time. Some can produce drawings of detail parts, others the assembly. This could be done with all three of the products selected as production possibilities. The teacher should give a brief lecture on drawing before allowing the students to start.)

3. (A floor plan showing the facilities layout should also be prepared at this time. This should also be done by the students. See Unit III, Lesson 17. Note the relationships between communication and property.)

4. (Films: This is an opportune time to show films pertaining to product design, drafting, and plant layout.)

Films

5. Drawings complete: (When the drawings have been completed they should be checked for errors. The designer and someone who will consider the production aspect should check all drawings.

NOTE: Each drawing must contain a list of materials, a suggested finish, limits or tolerances, and name or description.)

C. Conclusion

1. (By the last day of this lesson:

a. The feasibility study should be partially done.

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b. The product drawings and specifications should be complete.

c. A facilities layout drawing should be complete.)

2. The product design and drawings that were developed during this lesson will somewhat dictate our methods of producing, our methods of procuring, and our methods of marketing for our product. However, the next step is to determine whether the product is feasible to produce. How do we know this is the product for us? We must know whether it is feasible for us to produce and sell it.

V. Evaluation

1. Sketch a simple plan of our laboratory. Show the door and window openings plus all machines, benches, and other equipment.

2. Make an orthographic sketch, with dimensions, of a simple object. (The object will be supplied by the teacher.)

3. Identify three products that could be produced in the school laboratory used by this class.

   a. b. c.

4. Describe the procedure this class used in designing and drawing the proposed product(s).

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor________________________ Date________________

Unit Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain________________

6. Which activity did you use?________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain________________

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ______________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ______________________

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9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ______________________

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10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ______________________

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11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______________________

____

LEVEL I - American Industry
UNIT VII - The Students' Business Venture
Lesson 3 - Feasibility of Producing (2 periods)

Stout State University
Fall, 1967

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I. Objectives: At the conclusion of this lesson the student should be able to:

Perform a simple cost and production feasibility study for the product that may be produced by the student enterprise. If feasible for production, he will procure materials necessary to produce the product. (The student will also start to gain a knowledge of marketing feasibility.)

NOTE: The market analysis lesson which follows may be started when about half finished with this.

II. Scope

Products should be produced only after it has been proven to be feasible for a company to do so. This includes a study of facilities available, decisions to make or buy, the skills of the available personnel, and the time required to produce. Also, as discussed in the next lesson, the product must be saleable.

III. Resources

A. Instructional media

B. Literature

1. Industrial Organization and Management, Bethel, Atwater, Smith, and Stackman, 1962, McGraw-Hill, New York.

2. Plant Layout: Factors, Principles, and Techniques, Ruddell Reed, Jr., 1961, Richard D. Irwin, Homewood, Illinois.

IV. Content Outline

A. Introduction

1. Any company that plans the production of a product attempts to insure the success of its product. Precautions are taken to minimizing the risks of failure. Through studies of various types a company can go into production knowing their calculated risks and therefore forecast the relative success of a product.

2. What would you do to reduce the risk of failure for a product(s) you plan to produce?

3. In this lesson we will attempt to systematically gather data that will reduce our risk of failure when producing a product we have selected.

B. Activity and content

1. Today we will form a team (or teams) of students who will be concerned with answering one basic question. The question is: Is it feasible to produce the product we have selected? (Identify and discuss the product briefly.)

The teacher may decide to use more than one team to search for the answer to production feasibility.

2. We know that there are always risks in producing any product we wish to sell. The secret is to reduce risks as much as possible. This can be done by gathering and studying data pertaining to the production of the product.

3. We will gather and analyze the following data which will minimize our risks.

    a. Materials required for the product.

    b. The processes involved.

    c. The equipment needed.

    d. Labor required.

    e. Packaging the product.

    f. Transporting necessary equipment, materials, and people.

    g. Production tests.

    h. Government regulations.

4. The forms entitled "Product Feasibility" will be used for gathering and analyzing the data pertaining to a product. (In this case the teacher should use the proposed production product(s).)

Activity:
Product Feasibility

5. (The forms for this activity are self explanatory but should be reviewed in class.)

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6. NOTE: A Process Information Form is referred to in the Product Feasibility Form and is contained at the rear of this lesson.

C. Conclusion

1. (When the feasibility forms have been completed the lesson may be concluded with a suggested product to be produced in the laboratory. Discuss the conclusions made by the student groups. In many cases changes in production, processes, etc. will be suggested. However, the product is ready for production only when one more phase is complete--market analysis. The market analysis may be started when this lesson is about half complete.

2. (Briefly describe the market analysis as a study to determine whether a product will sell.)

V. Evaluation

1. What is a feasibility study?

2. What is the purpose of a feasibility study?

3. What are the basic areas of investigation?

4. What is a calculated risk?

5. What steps of procedure would you follow in doing a feasibility study?

Unit VII
Lesson 3
Activity

PRODUCT FEASIBILITY

NOTE: Before completing this form, the drawings or sketches, and specifications of the product involved must be available as references. (Use additional sheets when necessary.)

1. Name of product______________________________________

Parts and Materials:

2. Raw material(s) required________________________________

3. Parts to be purchased__________________________________

Description	Name of Material or Item	Source	Unit Cost*
4.			
5.#			
6.			
7.			

8. Total cost of available materials (purchased parts and raw material) for one product: (Add lines 4 and 6) $__________

Total Cost Using Substitutes $__________
(Add lines 5 and 7)

*Cost for one product
#Alternate sources or different materials

Labor:

9. Does your labor force have the skills necessary to produce the product?

____

10. Can they be trained in your laboratory?______________ If yes, how?

____

____

Processing the Product:

11. Describe the processes involved in making each part of the product. (See Process Information Form.)

12. At the rate of 50¢ per manhour, what is the total cost of processing one product? $____________

Production:

13. Do you have the equipment (jigs, fixtures, machines, etc.) required to produce the product? A.____________ If no, can you get it? B.____________ C. How?______________________________________

____

D. What will it cost?____

14. How can the equipment in your laboratory be positioned for efficient production?____

____

15 15. Do you have storage for the following? Describe these provisions:

A. Raw materials______________________________________

B. Materials being processed______________________________

C. Finished products___________________________________

16. Has a model or prototype been produced?__________

17. Has a pilot or test run been made on the production line?__________

18. Did the production seem reasonably well organized and efficient?______

________ If no, why?______________________________________

____

I/we suggest that the product (not be produced) (be produced as is) (be changed as suggested below).

Signed:____________________

____

____

____

Product Name____

PROCESS INFORMATION

General Description of Process____

____

____

Completed By:______________________________ Date____________________

Step #	Description	Equipment	Process Time	
			Est. Time	Real Time

LEVEL
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Instructor____________________ Date______________

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1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain________________

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(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ______________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ______________

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9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ______________

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10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ______________

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13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______________________________

____

LEVEL I - American Industry
UNIT VII - The Students' Business Venture
Lesson 4 - Is the Product Marketable? (3 periods)

Stout State University
Fall, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Perform a simple market analysis to determine whether a specific product will sell successfully.

II. Scope

The application of what was learned in other units, especially Unit V, will help the student gain a greater understanding of the concept of marketing. In this lesson the students will actually apply their theories in determining whether their product will sell.

III. Resources

A. Instructional media

Films from marketing concept area.

B. Literature

1. Student booklet, The Student Industry, pages 29-34.

2. See Lessons 1, 2, and 3 of Unit V in this guide. Take special note of the third lesson.

3. Student booklet, The Future of Industry, pages 1-26.

4. Basic Marketing: A Managerial Approach, E. Jerome McCarthy, 1964, Richard D. Irwin, Inc., Homewood, Illinois.

IV. Content Outline

A. Introduction

1. (Much of the information for this lesson will be in the form of references to other lessons you have presented previously. This lesson should provide your students a chance to apply their theories of market analysis by preparing a questionnaire and surveying potential customers.)

NOTE: This lesson may be started prior to the completion of sson 3.

2. (Assign the reading of pages 29 through 34 in student booklet, *The Future of Industry*. Special emphasis should be made for page 6 because it will help in designing a sample survey.)

B. Activity and content

1. (The students who are to conduct the market analysis should have read the material referred to in the previous paragraph. Then, the teacher should turn to Lesson 3 of Unit V and follow the sequence outlined for conducting this lesson.)

2. (*Remember, the activity in this lesson should require little direction from the teacher*. The reading by the students and a sequence from Lesson 3, Unit V should be the *only* direction required.)

3. (The questionnaire should be checked by the teacher before it is used.)

C. Conclusion

1. (Once the survey has been completed, the findings should be presented to the company officers before the class. At this time changes might be suggested or it may be decided not to manufacture the product at all.)

2. (When a product has been identified as the one to be made, the company is ready to develop a production system. In the next lesson the production system will be designed in order to produce the product selected.)

3. (Before concluding this lesson, the procurement personnel should prepare the order for the materials necessary to produce the product(s).)

V. Evaluation

1. What is the purpose of a market survey?

2. Could the market survey method be applied in many companies?__________
Why?

3. Does a market survey insure success in sales?_____________Why?

LEVEL I - American Industry
UNIT VII - The Students' Business Venture
Lesson 5 - Systems Development (2 periods)

Stout State University
Fall, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Develop simple systems to provide management information for production and sale of the product. This includes simple PERT charts and/or network analysis charts.

II. Scope

In any successful business venture the personnel involved must understand the plans of procedure which they are expected to follow. They are usually somewhat familiar with an overall plan of the business also. This lesson will involve the students in making these plans and using the system(s) developed.

III. Resources

A. Instructional media

1. First level film catalog.

B. Literature

1. Student booklet, The Student Industry, pages 36-41.

2. PERT Fundamentals, PERT Orientation and Training Center, Washington 25, D. C. Volumes I and II.

IV. Content Outline

A. Introduction

1. This lesson will be devoted to developing systems that can be analyzed prior to an actual pilot run. The systems will aid in developing logical and feasible procedures for carrying on business.

Assign reading of pages 36-41 before teaching this lesson.

2. A common method used in industry is called PERT (Program Evaluation Review Technique). In our class we will use something similar, called network analysis.

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3. From your reading in booklet #7, The Student Industry, (pages 36-41) what is a network? (It is a way of identifying what needs to be done and the order in which it should be done.)

B. Activity and content

1. I will demonstrate, with your help, how to develop a network for producing a product. You will be expected to use the same procedure to develop a network for your enterprise.

2. Let's assume that we are making a network for our student enterprise. We will start by identifying what has to be done. Do not be concerned with the order in which these jobs are to be done.

3. (List each item on the chalk board. Some of the items should be:)

    a. Selection of possible product(s).

    b. Develop simple sketches.

    c. Decide upon material needed.

    d. Decide what equipment is required.

    e. Is it feasible to produce?

    f. What is the price?

    g. Analyze the market.

    h. Complete drawings and specifications.

    i. Develop a production system.

    j. Design tooling.

    k. Make tooling.

    l. Pilot run of product.

    m. Produce product.

    n. Design a package for the product.

    o. Advertise the product.

    p. Sell the product.

(The above lists the major items that should be identified. However, the class should identify many more.)

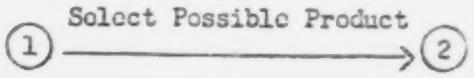
4. We have identified what needs to be done, now, we will show the sequence in which it will be done.

Refer to pages 38-39 in student booklet #7.

   a. What is the first activity that must be performed to start the job?

   (The teacher should start drawing the network on the chalk board. Use page 39 in student booklet, The Student Industry, as the model.)

Sketch on board.

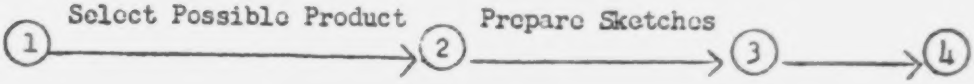


   b. What does this mean?

   (The beginning or end of an activity and is called an event.)

   c. What can be done next?

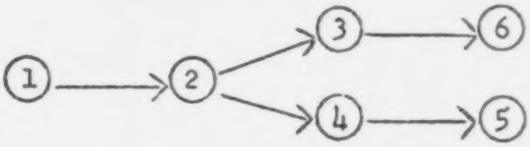
   (Using the items shown on the board, have the students identify what happens next. Example below.)



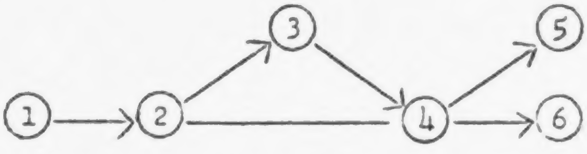
   (Continue identifying many activities that happen following those above.)

   d. Which of the activities can be done at the same time?

   (Identify those items that can be done at the same time by erasing and moving as shown below.)



e. For any particular activity, what must be done before the next activity can take place?



(This must take place before you can proceed with ⑤ and ⑥ .)

f. (Leave your network on the chalk board while working with the next activity.)

5. (Separate your class into three groups, each about equal in number. Have the groups prepare networks for the following: (NOTE: All networks are for the product being developed by the student enterprise.)

   a. Group #1: Research and development, including drawings.

   b. Group #2: Production of a product in your laboratory.

   c. Group #3: Sales plan network.)

6. (This should be done during classtime, thereby allowing the teacher an opportunity to identify problems in the networks. Remember--these networks are to be used in developing the product of the student enterprise and therefore must be in detail in order to be functional.)

7. (Outside activity--For an activity which could be done outside the class, have each student prepare a simple network of a procedure used by them or in the school, their home, or an enterprise they are familiar with.)

Outside activity

C. Conclusion

1. The use of network analysis is merely a method of graphically showing your plans. In turn, you and your fellow workers can analyze the plans and identify problem areas before attempting to put the plans into action.

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2. This type of planning also allows simple communication between people required to function in a way outlined by the network.

3. Thirdly, it is a document that can be examined after the job has been completed which allows for changes based upon what actually happened when the job was being done.

4. Next lessons--In the following lessons the networks will become our guides of procedure. If we find problems in our networks, we will correct them and then proceed.

5. (Discuss the next lesson in more detail by noting the equipment in the laboratory as it relates to the production system the class is to develop.)

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V. Evaluation

1. Prepare a simple network analysis showing how you would plan one of the following:

   a. A sales and advertising campaign for the product of your student industry.

   b. Producing your product after you have the drawings.

2. List four benefits of using the network analysis system.

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
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6. Which activity did you use?____________________

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(Be sure to fill out the items on the reverse side.)

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13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

LEVEL I - American Industry
UNIT VII - The Students' Business Venture
Lesson 6 - Selection and Design of a Production System (3 periods)

Stout State University
Fall, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Design an appropriate production system for a selected product which will be produced by the American Industry student enterprise. (This includes the design of necessary tooling and quality control procedures.)

II. Scope

We are going to produce a product. Let's assume that we have drawings and specifications for the product and have the materials needed for production. In this lesson we will take the next step by detailing a production system which will include the design of tooling for our product.

III. Resources

A. Instructional media

1. Grid pattern on overhead transparency for laboratory layout.

B. Literature

1. Student booklet, The Student Industry, pages 43-46 and 51-53.

2. Industrial Organization and Management by Bethel, Atwater, Smith, and Stackman, 1962, McGraw-Hill Book Company, Inc., New York.

IV. Content Outline

A. Introduction

1. (In looking at the plans developed in the previous lesson there should be a network showing the production sequence. The network should be viewed and discussed by the class in relation to the objectives of this lesson. Some of the planning principles can be used in detailing this production system.)

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2. The purpose of this lesson is to design a production system which will allow us to produce our product. It will include the floor layout, identification of machines or work stations, identification and design of tooling, and establishing a quality control system.

B. Activity and content

1. We will start this activity by using our drawings to identify each part we have to make or buy. (The purchase of all raw materials or finished parts should be complete at this time. This is for identification only. Place your comments on the chalk board. The activity sheet from Lesson 3 will also contain some of this information.)

2. Next we will identify all assemblies to be made. (The detail and assembly drawings should provide all of the above information. The name of each part should be written on the chalk board.)

3. Production processes and quality control. (The Vice President of Production should be in charge of the following, with minimum guidance from the teacher.)

   a. (Before starting this activity, copies of the laboratory layout should be given to each class member.)

   b. (The class should be broken into groups with each group receiving a drawing of a different detail part that is to be manufactured. NOTE: One other group should be kept for assembly procedures which will be planned later. Each group is to show what equipment is required to make their assigned part. They should provide the following information:

   Detail parts group:

   (1) The amount of material required.

   (2) Equipment they feel is needed for producing the part.

   (3) Sketches or drawings of any jigs or or fixtures needed to make the part.

Distribute copies of the laboratory floor plan.

NOTE: The number of groups will be dictated by the number of detail parts and assemblies to be produced.

(4) A step-by-step procedure for making the part. This includes the identification of work stations and/or machines.

(5) A quality control procedure, including equipment needed, to insure that the product is made according to the drawings and specifications. Inspection should be in the form of a step-by-step procedure also.)

c. The assembly group:

(The group in charge of assembly procedures should provide the following information:

(1) Sketches or drawings of jigs or fixtures needed for assembly.

(2) A step-by-step procedure for assembly. In some cases this may require a drawing.

(3) A quality control procedure, including equipment needed, to insure that the product is assembled according to the drawings and specifications. Inspection should be in the form of a step-by-step procedure.)

C. Conclusion

1. Check the plans and procedures.

(In order that you may proceed with the next lesson all drawings, floor plans, and procedures should be carefully checked. The Vice President of Production should determine what parts can be produced simultaneously and the approximate time required to produce each part. He should also determine the approximate time required for assembly. You should check to be sure that the proper production system has been designed. For example, a mass production system is not appropriate for producing made-to-order jewelry.)

2. In our next lesson we are going to make the tooling that we planned during this lesson. We are also going to perform a pilot run and train people on the job for production.

V. Evaluation

1. What is the purpose of tooling?
2. What tooling was designed for use in producing our product? (Describe the function also.)
3. If you were in charge of all tool design for our product, how would you change our present tooling?
4. What is quality control?
5. How did we apply quality control in this lesson?
6. How many ways can you think of in which industry controls the quality of their products?

LEVEL I - American Industry
UNIT VII - The Students' Business Venture
Lesson 7 - Getting Ready to Produce (3 periods)

Stout State University
Fall, 1967

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I. Objectives: At the conclusion of this lesson the student should be able to:

Prepare for a production run by setting up machines, making or buying tooling, and selecting and training personnel (training will include a pilot run).

II. Scope

The plans made in many of our previous lessons will be tested during this lesson. We have made plans for production and now we will determine whether changes will be required to insure a smooth production activity.

III. Resources

A. Instructional media

B. Literature

1 Student booklet, The Student Industry, review pages 9-20 and 35-53. Read pages 61-64.

IV. Content Outline

A. Introduction

1. (In this lesson the purposes are as follows:

a. Select personnel for production line. Most of the supervisory types should have been selected in Lesson 1 of this unit, however, some changes may be necessary by this time.

b. Make or buy the jigs and fixtures designed in the previous lesson. Most should be made in the laboratory.

c. Train personnel--the teacher may have to demonstrate equipment and check each machine operator to insure that the student is qualified to operate the machine safely.

d. A pilot run can be made as part of the training program.)

2. (Some suggested activities have been included at the end of this unit. They may be used for those classes with limited time available.)

B. Activity and content

1. Before starting, the following should be available or take place:

    a. Drawings of the jigs and fixtures.

    b. The floor layout drawings.

    c. A second check should be made of safety records to find which students are not qualified to operate equipment.

    d. Work application, previous experience, and interview evaluation records should be available. See Unit III, Lesson 11 for samples.

    e. Necessary material should have been procured, and the steps of procedure for making, assembling, and inspecting the product.

2. Selection and training for producing jigs and fixtures.

    a. (If your production personnel have not been identified, do it now. This may require the completion of application forms and interviewing. It should be done by the Vice President of Production and his selected supervisors. Note the procedure given below.)

Have application forms available.

    b. (Decide what jobs your production personnel will perform. This will require the Vice President of Production to analyze the tasks involved in producing the product. Then each person's records should be checked by the Vice President of Production. He should determine what job or jobs each person can do and whether further training is required.

Assign the Vice President of Production this task about two days prior.

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If the student is not qualified to operate the equipment, the teacher should demonstrate the equipment, then allow the student to operate it while he is with the student.)

3. Producing jigs and fixtures.

(The jigs and fixtures can now be produced. Don't forget to check the jigs and fixtures to assure proper function of each. If they do not function properly change the drawings and the jigs or fixtures.)

4. Layout of the laboratory.

(While the jigs and fixtures are being produced, have a couple of your students place the numbers shown on the laboratory layout drawing upon each machine and at each work station. Post a copy of this drawing where it can be read by the class members for future reference.)

5. Trial run and training.

a. (Now, to try out your production system and at the same time perform a training function. The Vice President of Production should have all production personnel at their work stations. He should then "verbally" produce a product, that is, he should follow the steps of procedure outlined earlier and approach each worker and ask him what exactly would he be doing if the production line were actually functioning. If the person cannot describe his job, the supervisor in charge should tell him again and demonstrate if necessary.)

b. (The quality control personnel should also inspect a product "verbally" and be retrained if required.)

c. (Finally, the entire production line should be set into motion, but a slow motion at first. They should produce one product on a trail run basis as preparation for the production of many products. The production process should be evaluated to determine when it can be improved. Use the research procedures learned in Unit III.)

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C. Conclusion

1. (At this point the class has made one trial run. In the next lesson you will be producing products according to your plans and personnel. Any changes should be made by the people who developed them and checked by the Vice President of Production.)

2. (A number of class periods will be spent producing the product. Data should be recorded by supervisors. This data will indicate whether your original time, materials, processes, and costs are accurate. This historical data will be useful in future development and production activities.)

V. Evaluation

1. Describe your function in the student enterprise.

2. How does your work affect the people in the student enterprise as a whole?

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor____________________ Date______________

Unit Number______ Lesson Number______ Date Lesson Started______

1. Amount of time used to complete lesson (to nearest ½ class period)______

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain______________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain______________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain______________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain______________

6. Which activity did you use?______________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain______________

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

LEVEL I - American Industry
UNIT VII - The Students' Business Venture
Lesson 8 - Production According to Plans (8 periods)

Stout State University
Fall, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Utilize an established set of production plans (drawings, specification, procedures) in producing a simple product. And, make revisions in these plans to facilitate efficient production.

II. Scope

This lesson tests the students planning ability, which combined with their technical know-how allows them to produce a product in an efficient manner. In some instances, they will have to revise their plans in order to meet their goals.

III. Resources

A. Instructional media

1. First level film catalog--processes.

B. Literature

1. Review pages 1-64 in student booklet, The Student Industry.

2. Organization for Production, Edwin S. Roscoe, 1967, Richard D. Irwin, Inc., Homewood, Illinois.

IV. Content Outline

A. Introduction

1. (During the next few days the class should be involved in producing the product they have planned. It will be exciting for your students to see their production line in action. The teacher should remind his class of the planning they did which allowed production to take place. At times your students probably questioned the usefulness of such detailed planning, but now the benefits should be obvious. It should allow them to see how detailed plans permit efficient production.)

2. (This lesson should be almost completely in the hands of your students. However, safe practices must be followed regardless of the class in session.

   When in the laboratory the supervisors should be observing the workers to insure safe operation of equipment, but the teacher must always be alert as he is responsible for his students.)

B. Activity and content

1. We are going to start our production line today. In preparing to start the line, we must make some final checks.

   a. Are there replacements for workers who may be absent? If there are not, we must train some.

   b. Does each person understand his job? Ask questions now.

   c. Does our schedule show the items to be produced today, tomorrow, and throughout our production time? If not, complete it now.

   d. Are our machines set-up for production?

   e. Are the materials available, and will they be routed to the proper process areas? (This should show on the floor plan layout which should be posted in the laboratory.)

   f. Are the equipment operators qualified to use the equipment? Have they met the safety requirements? (If not, get this now.)

   g. Are the supervisors familiar with the production line? They must be able to expedite problems as they arise.

   h. Are the inspectors ready to perform their quality control duties? Do they need any special measuring equipment?

   i. Will the supervisors keep records of time and materials (including waste) required to produce a product? (Records are an absolute necessity.)

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2. The above listing should provide the final preparatory checks for the production phase of our enterprise. Let's start production safely and finish the same way.

3. (This production activity should be student operated with very little teacher instruction. A class will learn from their mistakes, therefore, if safety or large amounts of money are not involved, let them make some mistakes.)

4. (NOTE: About two days before the production run ends, discuss packaging of the product. Have each student sketch and/or make a model of a proposed package. Be sure to mention that packages may be designed for protection and for sales appeal.)

C. Conclusion

1. In concluding this lesson attempt to save one day for an industrial oriented experience. This could be through a film, field trip, or a guest lecturer from a production department in industry.

2. On the last day of this lesson the Vice President of Production should gather all production data and report the findings to the class. The following should be discussed:

   a. Production problems should be identified and ways of alleviating them.

   b. Estimated time and cost compared to actual time and costs for producing the product.

   c. Suggestions from workers should be solicited, recorded, and discussed. This refers to any person's job.

   d. Finally, a report of the total number of products produced and the storage procedure.

3. (At this point introduce the next lesson by asking about the assignment made earlier. That assignment was to sketch and/or make a model of a package for the product. Remind the students who have not completed the assignment that it is due tomorrow.)

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V. Evaluation

1. Trace the steps of procedure involved in making the product just produced. (Let's assume you have drawings to start with.)

2. How would you improve the production process we used for our product?

3. Can you identify three ways in which we could reduce the cost of producing the product without lowering the quality?

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor_______________________ Date_______________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________

6. Which activity did you use?____________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ______________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________
____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________
____

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________
____

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______________________________
____

LEVEL I - American Industry
UNIT VII - The Students' Business Venture
Lesson 9 - Packaging a Product (2 periods)

Stout State University
Fall, 1967

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I. Objectives: At the conclusion of this lesson the student should be able to:

Identify the basic purposes of and develop a package for a selected product.

II. Scope

Packages perform two basic functions; they protect the product and induce sales. In this lesson we will attempt to design and make a package that will function in these ways for the product made by the student enterprise.

III. Resources

A. Instructional media

B. Literature

1. Student booklet, The Student Industry, pages 54-55.

2. Modern Packaging Encyclopedia, McGraw-Hill, Inc.

IV. Content Outline

A. Introduction

1. (About two days prior to starting this lesson, each student should have been assigned the task of designing a package for the product completed by the student enterprise.)

(Today they should have their sketches and/or models ready to show the class.)

NOTE: When making this assignment identify the two purposes of a package as (1) protection and (2) sales appeal.

2. (An additional outside assignment could be to have each student bring three or more examples of packages or packaging materials for display and discussion. This should be assigned about a week prior to teaching this lesson.)

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3. (Refer to Lesson 8, Unit V. In the referenced lesson the many types of packaging and packaging materials were discussed. Now the teacher should refer to the various types of packaging and bring out the ways in which the class can apply what they learned earlier.)

B. Activity and content

(Review)

1. What are the basic purposes of packages? (Protection and sales appeal.)

2. Can you identify packaging that serves one purpose? How about protection only?

3. Can you identify packaging for sales appeal only?

4. Now identify packaging that serves both sales appeal and protection.

5. What purpose(s) should the package for our product serve? (If sales have been made you may require protection only. However, other prospective customers may be induced to buy your product because of the attractiveness of the package.)

6. We will now review some of the considerations that must take place prior to preparing a package.

   (This activity will require the use of the Packaging Check List found on the next page. It can be used to analyze the packaging designs done by the students and aid in preparing the final design for the packaging of your students' product.)

   (Refer to the Packaging Check List which is self-explanatory. This list must be completed before the package can be developed.)

   (Give a copy of the check list to each student, or team of students, and allow them to start developing the package. Use ideas from the sketches and models brought into class today.)

Name____________________

School__________________

Date____________________

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PACKAGING CHECK LIST

1. Product name______________________________________

2. Package is designed to protect________; provide sales appeal__________

3. Person responsible for final "ok" of package________________________

4. Date packages must be available_____________________________

5. Quantity of packages required______________________________

6. Physical form of product:

Liquid______________ Comment______________________________

Solid_______________ Comment______________________________

Gas_________________ Comment______________________________

Other_______________ Comment______________________________

____

7. Characteristics of product:

Fragile_______________

Sticky________________

Lumpy_________________

Toxic_________________

Volitile______________

Abrasive______________

Other_________________

____

8. Protection required:

Temperature____________ Explain_____________________________

Moisture_______________ Explain_____________________________

Light__________________ Explain_____________________________

Mold___________________ Explain_____________________________

Rodents or insects______________ Explain______________________

Corrosion______________________ Explain______________________

Petroleum Products______________ Explain______________________

Odors__________________________ Explain______________________

Others____

____

____

9. What features will be required for handling, shipping, or storing?

____

____

____

SALES APPEAL

10. Approximate age of potential customer_____________________

11. Approximate income level__________________________________

12. Type of selling involved (door-to-door, sales outlets, etc.)__________

____

13. What sales appeal will best communicate with the customer?__________

____

14. Will packages be used as part of a display?______________

15. Is safety a factor when the customer is handling the package?________

Explain ____

16. Can the empty package be re-used?________________________________

17. What material will the package be made from?______________________

18. Will the package be decorated? How and with what?_________________

____

19. Will the material accept the decorating?__________________________

FINAL CONSIDERATIONS

20. Has minimum material been used in making the package?_____________

21. Are the weight and size economical for the shipper?_______________

22. Have the design specifications been detailed? (Drawings, etc.)______

____

23. Do you have a source of supply for your materials?________________

NOTE: Drawings, sketches, and other related information should be attached to this form.

24. Additional comments:____

____

____

____

____

____

____

C. Conclusion

1. (At this time one, or several packages should have been designed. The president should select the "best" one for production.)

2. (Procure material and produce the packages only after a trial run has been made.)

3. (The next lesson is a carry-over from this because it deals with marketing the product. Review the lesson and show how the sales appeal is brought out again in the next lesson.)

V. Evaluation

1. What are the basic purposes of packages?

2. Identify six materials you have seen used for packaging.

a	d
b	e
c	f

3. Describe the package that might be used for the following and why.

a. Chocolate candy______________________________

____

____

b. Grease______________________________

____

____

c. Oxygen (in a gaseous form)______________________________

____

____

d. Loose leaf notebook paper______________________________

____

____

e. Turpentine______________________________

____

____

f. A television set (portable)______________________________

____

____

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

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Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor______________________________ Date____________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________
____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain______________________________
____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain______________________________
____

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain______________________________
____

6. Which activity did you use?______________________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain
____

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ____________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ____________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ____________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ____________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ____________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________

LEVEL I - American Industry
UNIT VII - The Students' Business Venture
Lesson 10 - Marketing the Product (2 periods)

Stout State University
Fall, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Develop a simple advertising campaign for a product made by the student enterprise. He should also be able to prepare instructions for the care and use of the product. (NOTE: The activity in this lesson may be started anytime after the first product has been made in the production phase of the student enterprise.)

II. Scope

The selling of a product is another step toward profit. It is one of the final steps, but extremely important. We do not wish to produce products we can't sell, however, we do want to sell as many as possible.

III. Resources

A. Instructional media

B. Literature

1. Student booklet, The Student Industry, pages 65-67.

2. See Lessons 4 and 5 of Unit V.

3. Promotional Strategy, Engel, Wales, and Warshaw, 1967, Richard D. Irwin, Inc., Homewood, Illinois.

IV. Content Outline

A. Introduction

1. The products we are producing will sell. We know they will sell because our market research tells us they will. (Refer to Lesson 4 of this unit.) We know that some people will buy our product, but we must inform others and convince them to buy. We must communicate with our prospective customers.

2. Essentially, what are we talking about when we refer to informing others and convincing them to buy? (Advertising and communication.)

3. We will develop an advertising campaign in order that we can produce maximum sales. Have we done advertising before? In what way?

B. Activity and content

1. (Teacher, read and follow Lesson 4, Unit V of Level I.)

2. During this lesson you, the students, are going to develop the advertising for your product.

3. What are the basic objectives of advertising? (To inform and convince our customers to buy.)

4. How will we inform and convince our customers? Through what media?
(They should suggest some means as local newspapers, school paper, radio, the package holding the product, billboards, or even the school intercom.)

5. (At this point the class should decide upon the media of advertising. Then ask for volunteers to head-up media development groups.)

Group activity.

   a. (Those interested in sign layout and development should be grouped.)

   b. (If you are planning for a "spot" on radio or a school "intercom" announcement, have an interested group prepare these.)

   c. (An "ad" for the school paper or a local paper could be laid out by another group.)

6. (Another suggestion would be to have each individual select one media and develop the entire media by himself. That is, one student would design and make a sign or advertisement. Another would write the "ad" for the school "intercom" or the local radio station, etc. At the end of the predetermined time, the class would select the advertisements they wish to use. Be sure to evaluate the suggested advertising on the basis of its communicative qualities, its cost, and the feasibility of using it.)

An optional individual activity

C. Conclusion

1. Earlier we determined whether our product would sell by doing a market survey. Next, we prepared a package for the product. We just finished developing our advertising. Tomorrow we will prepare a sales campaign.
2. Since most selling will take place outside class time, we will get organized tomorrow and start our sales after class.
3. (Teacher: Read the next lesson and make appropriate assignments. Some class organization could be done now, if time permits.)

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V. Evaluation

1. What are the two basic purposes of advertising?

   a.

   b.

2. Identify three advertising media. (Example: television.)

   a.

   b.

   c.

3. How would you advertise letter jackets?

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor____________________________________ Date__________________________

Unit Number__________ Lesson Number__________ Date Lesson Started___________

1. Amount of time used to complete lesson (to nearest ½ class period)_______

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain_______________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain________________________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____

6. Which activity did you use?____
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ________________________________

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____

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ________________

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10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ________________

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11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ________________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ____________________________

____

LEVEL I - American Industry
UNIT VII - The Students' Business Venture
Lesson 11 - Selling the Product (1 period)

Stout State University
Fall, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Conduct a sales campaign based upon previous market research data and the advertising program used by the enterprise. This campaign will be designed to sell the product(s) made by the student enterprise.

II. Scope

With a successful sales campaign we can sell our product. What method of sales will we use? Will this be the best method? Is there a selling process we can follow?

III. Resources

A. Instructional media

B. Literature

1. Student booklet, The Student Industry, pages 67-70.

2. Retailing Principles and Methods, Duncan and Phillips, 1967, Richard D. Irwin, Inc., Homewood, Illinois.

IV. Content Outline

A. Introduction

1. If we are going to develop and conduct a successful sales campaign, there are several considerations we must take into account. They are:

a. Where and how will we sell this product?

--Will we have an outlet here at school, in a local store, or elsewhere?

--Will we approach individuals on a door-to-door or person-to-person basis?

--Will we wholesale large numbers of our product to retailers?

--Just where and how will we sell our product?

b. When will we sell it?

--Will the season affect sales?

--How about the time of day, or the day of the week?

2. (NOTE: Much of the above information should have been provided through your market research. If not, resolve the questions before continuing.)

B. Activity and content

1. We know that a product is to be sold. We know who the potential customers are. We know when, how, and where the product is to be sold. But, do we know anything about the process of selling? (Discuss this briefly--carry on the discussion to the point that your students see that they need more information in this area or you can summarize the following points from their comments.)

2. There are many approaches to selling. However, in most cases the process of selling is the same. The process shown below may be considered as basic with respect to the process of selling.

3. The selling process: The following steps make up the selling process, however, in some cases the sequence may change or some steps may be omitted in closing the sale.

   a. Approach the customer: This greeting may take place in a store, home, the school, or elsewhere. The greeting should be sincere and pleasant. Let the customer know that you are interested in meeting his needs or wants.

   b. Customer needs or wants: In our case we have only one or two products and therefore we can determine whether the customer needs or wants our product. This can be done by presenting the product--tactfully.

   c. Present the product: Effective presentation of a product is often the determiner in selling a product. Know the product and the needs it satisfies. Select and present your selling points. Display in an attractive setting. Let the customer ask questions.

d. Questions about the product: In some cases this is where the customer states his objections to the product. These objections may be sincere reasons why the customer does not wish to buy, or they may be excuses. The salesman may have to ask questions to determine why the customer does not wish to buy. However, this must be done without offending the customer. Remember, we do not offend our customer. We might win an argument but loose a sale.

e. Making the sale: Making the sales transaction should be almost automatic when the time is right. All people do not react the same, therefore, the salesman must make an arbitrary decision as to when the sale should be closed. Hurrying the customer or attempts to force a decision to buy may irritate the customer. In turn, this may cause the customer to buy from you later or suggest your product to someone else.

4. Student activity: As a student activity, select teams of two people (one customer, one salesman) and have them demonstrate, by role playing, selling the product. This should include the proper steps in the selling process. While the role playing is taking place, have the class take notes on the strong and weak points which can be discussed following the "sales pitch."

C. Conclusion

1. (The final phase of this lesson, actual selling of the product, will probably continue into the next lesson. In some way, each class member should be involved in the selling of the product. Some will direct the sales force, others will chart and record the sales.)

2. (To conclude this lesson, the steps of procedure followed in conducting the sales campaign and the sales process should be discussed. The student in charge of sales could be called upon to aid the teacher in doing this.)

3. When the business venture has been completed and all sales are final, we must look back at our experiences. Then we can evaluate our practices and learn how to improve our business efficiency. In our next lesson we will evaluate our business venture and determine the amount of success we had.

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V. Evaluation

1. If you were selling vacuum cleaners on a door-to-door basis, what sales process steps would you follow in making a house call?

2. How would you answer a lady who said that she needed a vacuum cleaner but thought your competitors had a better one?

3. How could we have improved our sales procedures?

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor________________________________ Date______________________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain______________________
____

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ [illegible]

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ______________________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ______________________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ______________________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ______________________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project.

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______________________________

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LEVEL I - American Industry
UNIT VII - The Students' Business Venture
Lesson 12 - Evaluating Our Business Venture (1 period)

Stout State University
Fall, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Prepare a simple profit and loss statement and, based upon experience gained, identify ways in which profits could be increased if production and marketing were to be continued or if the enterprise was to be started again.

II. Scope

Periodically all businesses should evaluate their operational procedures. They should also examine their financial status and determine the amount of profit or loss during a specific period of operation. From this evaluation they can develop ways of increasing efficiency by applying knowledge gained through past experience.

III. Resources

A. Instructional media

B. Literature

Student booklet, The Student Industry, pages 71-73.

IV. Content Outline

A. Introduction

1. (In starting this lesson we can assume that each student has read pages 71-73 in the student booklet, The Student Industry.)

(The booklet does an excellent job of outlining the basic transactions required in order to evaluate our enterprise. Be certain that the students have read their assignment.)

Student assignment: Have each student read pages 71-73 thoroughly.

2. (The first step in evaluating our enterprise was taken by completing a profit and loss statement. This will be reported by the Vice President of Administration.)

B. Activity and content

1. (On page 73 of student booklet, *The Student Industry*, is an example of a simply constructed profit and loss statement. The Vice President of Administration and the Supervisor of Finance are responsible for preparing this document. This assignment should be made about a week prior to this lesson. However, they should have been aware of this duty when they received their jobs. Encourage the use of visual aids and written reports to improve communication.)

2. (As an activity for each student, have each complete the form entitled, "Suggested Improvements." One form should be completed for each job held by the student during this unit. This assignment should be made about two days prior to teaching this unit.)

Activity:
Assign about
two days prior.

3. (To start the lesson, ask for reports by the following: These reports may be given by the Vice President or Supervisor who is more involved in the details. Remember to have these students use visual aids to facilitate communication. Each presentor should briefly consider how each concept area affects the results he is reporting.)

   a. Vice President of Marketing--Report on the market research conducted which should compare estimated sales to actual sales. The type of advertising should be reported. Also, reasons should be given for the success or failure to sell products.

   b. The Vice President of Administration--A report concerning the financial status of the company (profit and loss statement) and other financial records should be made. A brief report should describe how effective the hiring procedures were. In addition, this student should identify other factors which influenced profits.

   c. Vice President of Production--His reporting should include the procurement policy and its effectiveness. He (or his supervisors) should report the procedures used and present status of research and development, production, and quality control. (NOTE: Do not allow these reports to become lengthy. Have the students prepare brief informative reports.)

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4. (After the reports have been presented, have the students review their "Suggested Improvement" forms and spend the remainder of the class period discussing their suggested improvements. Have each state how their improvements might be applied. Consider how each of the concepts might influence the profits. Also, consider some of the obvious interactions between the concepts--for example, marketing and communication are closely tied together as are production, management, marketing, and profit.)

C. Conclusion

1. (Have the President collect all "Suggested Improvement" forms and assign four or five students the task of compiling the data. This data should be compiled by the product, then broken into specific jobs.)

2. Discuss the summary of the "Suggested Improvement" forms.

3. (To conclude this lesson, have each student return all property of the student enterprise. Explain the objective of your concluding lesson, that is to dissolve the enterprise and liquidate the assets.)

SUGGESTED IMPROVEMENTS

Directions: Remember to use the concepts of industry as guides to the work you do on this activity sheet.

1. Name______________________ Date____________
2. Product being produced______________________
3. My job was______________________
4. If I were to do this job again, I would suggest the following changes:
5. Other improvements that I would make would include:______________

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor______________________ Date______________

Unit Number__________ Lesson Number__________ Date Lesson Started__________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain______________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain______________________

4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain______________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain______________________

6. Which activity did you use?______________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain______________________

(Be sure to fill out the items on the reverse side.)

7. The evaluation items (a) ☐ were adequate, (b) ☐ were not enough of them, (c) ☐ were unrelated to the lesson, (d) ☐ none in the lesson, (e) ☐ were developed by the instructor. If (c) explain, if (e) send copies of the items ______________________

8. This lesson (a) ☐ fit into the sequence of other lessons in this unit, (b) ☐ did not fit into the lesson sequence. If (b) explain ______________________

9. The suggested student reading from the student booklets (a) ☐ helped to meet the objectives of the lesson, (b) ☐ had little relevance to the lesson, (c) ☐ was not used. If (b) or (c) explain ______________________

10. The suggested outside references (a) ☐ were used and found helpful (identify), (b) ☐ were not used, (c) ☐ other outside references were used. If (a) or (c) explain or list the references ______________________

11. The media suggested for this lesson was (a) ☐ effective, (b) ☐ ineffective, (c) ☐ none used.

12. Did you develop any of your own media? (a) ☐ yes, (b) ☐ no. If you did, was it effective? (a) ☐ very effective, (b) ☐ effective, (c) ☐ ineffective, (d) ☐ poor. Send a copy or description of your media to the Project

13. List any films used with this lesson and rate them as (E) excellent, (G) good, (F) fair, or (P) poor ______________________

14. Did you follow the lesson outline? (a) ☐ yes, (b) ☐ no. If (b), briefly describe the changes you made ______________________

LEVEL I - American Industry
UNIT VII - The Students' Business Venture
Lesson 13 - Concluding the Course (2 periods)

Stout State University
Fall, 1967

I. Objectives: At the conclusion of this lesson the student should be able to:

Review the up-to-date records of the student enterprise and dissolve the business by liquidating all assets of the enterprise.

II. Scope

The first part of this lesson should be used in updating the records of the enterprise. Then decisions as to property disposition should be made. Finally the company should declare a profit, or loss, and the results should be given to the stockholders.

III. Resources

A. Instructional media

B. Literature

1. Student booklet, The Student Industry, pages 75-77.

2. Basic Business Finance, Hunt, Williams, & Donaldson, 1966, Richard D. Irwin, Inc., Homewood, Illinois.

3. Modern Production Management, Elwood S. Buffa, 1965, John Wiley & Sons, Inc., New York.

IV. Content Outline

A. Introduction

The vice presidents should request final reports from their supervisors. Each vice president should then compile a report for the president. Finally the president should prepare a final report for the stockholders.

At the beginning of the enterprise, the company officers should be directed to keep records.

B. Activity and content

(Communication devices such as charts and graphs should be used in these reports.)

About a week prior to teaching this lesson remind all company officers that all records are to be up-to-date and summarized within a week.

1. The Vice President of Marketing should report the following:

   a. Projected sales as compared to actual sales.

   b. The various media used in advertising, which should include samples.

2. The Vice President of Production and his supervisors should report the following:

   a. The sources for most materials procured and the reasons why the sources were selected.

   b. The amount of unused material and the reason why.

   c. A brief explanation of the laboratory layout as it was used for production.

   d. The number of products produced and the number of man hours and material required to make one product.

   e. The routing and scheduling systems used and why.

   f. An explanation of the product research involved in designing the product.

   g. An explanation of the quality control system and the percentage of rejects or reworks.

   h. The packaging techniques should also be explained.

3. The Vice President of Administration and his supervisors should report the following:

   a. Formal and informal procedures and how they were accepted.

   b. A report of the financial condition of the enterprise. This will be the final report of the company. (The Supervisor of Finance will probably make this report.) It will explain the assets and liabilities of the company.

The report should consist of three basic parts: assets, liabilities, and a financial explanation of the profit or loss.

(1) Assets--List all assets after selling everything. In this case we will sell unused material, products that have not been sold, and all other property of the enterprise.

(2) Liabilities--List the liabilities and pay all debts.

(3) Financial Explanation--If enough money exists, reimburse each stockholder the price of his stock. Then, if there is money left, it is divided equally for each share of stock that has been sold and given to the stockholders. (An example is on the next page.)

C. Conclusion

(After all financial matters have been reported and the final report has been made, the teacher should review this lesson by giving a brief quiz. This quiz should include a mixed listing of assets and liabilities. The students should be able to prepare a simple final report for a fictitious company.)

John Doe, Incorporated
Balance Sheet
December 31, 1968

ASSETS				
Current Assets				
Cash on hand		$53.00		
Accounts receivable		8.00		
Inventory				
Raw materials	$11.00			
Purchased parts	.50			
Finished products	3.50	15.00		
Total current assets			$76.00	
Property				
Tools, machines and equipment		$14.00		
Tooling (jigs and fixtures)		10.00		
Total property			$24.00	
Total Assets				$100.00
LIABILITIES AND EQUITY CAPITAL				
Current Liabilities				
Notes payable (money borrowed)		$24.00		
Accounts payable				
Jones Lumber Company	$ 7.50			
Bartlett Hardware	4.50			
Economy Tools	4.00	16.00		
Total current liabilities			$40.00	
Equity Capital				
Common stock ($1 par value per share)		$20.00		
Profit (retained income)		40.00		
Total equity capital			$60.00	
Total Liabilities and Equity Capital				$100.00

John Doe, Incorporated
Operating Statement
January 1, 1968 to December 31, 1968

SALES		$200.00	
COST OF PRODUCTS SOLD			
Cost of materials	$30.00		
Labor cost	20.00		
Freight	10.00		
Total cost of goods sold		$ 60.00	
Gross profit on sales		$140.00	
EXPENSES			
Salaries and commissions	$40.00		
Fringe benefits	7.00		
Depreciation	2.00		
Rent	20.00		
Utilities	10.00		
Insurance	5.00		
Interest	1.44		
Supplies	3.56		
Miscellaneous	1.00		
Taxes	10.00		
Total expenses		$100.00	
NET PROFIT			$40.00

To The American Industry Teacher: Some Descriptive Comments On The Financial Statements Included in Unit VII.

I. Balance Sheet

The balance sheet gives the financial status of a business at a given point in time. Assets tell what the enterprise owns. Liabilities identify what the company owes. Further definition of several of the items in the balance sheet follows.

A. Accounts Receivable: Money owed to the enterprise for goods or services sold. For example, when you use your credit card to obtain gas your charge account is an account receivable for that enterprise.

B. Inventory: Cost or market value of the raw materials, purchased parts, and finished products in possession of the enterprise.

C. Notes payable: Money borrowed to finance the enterprise.

D. Equity Capital: The value or worth which the owner(s) have in the enterprise. In the example there were twenty shares of stock issued. Each share has a value or net worth of $3.00. (Note that par value is $1.00 per share and profit is $2.00 per share.) If twenty people owned these shares, each person's equity in the company (the value of his ownership) would be $3.00. Typically, stockholders in a company do not own the same number of shares.

NOTE: Total assets must equal total liabilities.

Some evaluation criteria are:

A. Ratio of total liabilities to total assets - $\frac{\text{Total Liabilities}}{\text{Total Assets}}$

In the sample balance sheet, this would be -

$$\frac{\text{Total Current Liabilities}}{\text{Total Assets}} = \frac{40}{100} = .4 \text{ or } 40\%$$

Generally, the lower this ratio or per cent is, the more sound the company.

B. Total current assets compared with current liabilities -

$$\frac{\text{Total Current Assets}}{\text{Current Liabilities}}$$

This ratio will vary from industry to industry. However, larger ratios generally indicate the business is in better condition. In the sample set of forms the ratio is 1.9.

C. Value of current assets. These are assets which are or can be turned into cash on short notice. The example depicts a high liquid state, 76% of the assets are liquid.

II. Operating Statement (Profit and Loss Statement)

The operating statement details the influence on profits of the various activities and transactions of a business. Each statement will cover a specific period of time. In the example, it is for one year. Shorter periods of time may also be used. Contrast this with the balance sheet which gives the status of an enterprise at a specific period in time.

An operating statement gives a detailed account of expenses and income. Thus, you are able to identify the contributions of various activities to income and expenses. Further explanation of some of the entries in the operating statement follows.

A. Sales: This is the money received for the sale of products.

B. Cost of Materials: This is the cost of raw materials, such as lumber, and purchased parts, such as screws, used in making the product.

C. Labor Cost: This is the cost of the labor used directly in producing the product. For example, the assembly line workers and machine operators.

D. Expenses: These are costs that are normally incurred by an enterprise during its operations.

1. Salaries and Commissions: This included the salaries of the office workers and the salesmen's commissions.

2. Fringe Benefits: Social security, hospitalization, and company retirement and savings plans are encompassed in this category.

3. Depreciation: Cost for the period for items whose useful life extends beyond the accounting period. For example, a circular saw would have a useful life of several years and its cost would be spread over that period. In the example given, tooling has a value of $10 and a useful life of five years. Thus, depreciation in the operating statement is $2.

4. Utilities: Light, heat, water and telephone.

5. Supplies: Paper clips, floor wax, pencils, lubricating oil, abrasive paper, etc.

6. Taxes: Local, state and federal. In the example, an arbitrary rate of 20% was applied to the profit before taxes. ($50 x .20 = $10) Actual tax rates can be found in the tax schedules issued by government agencies. Taxes on your student enterprise can be given to the school. A 20 percent rate as used above would not appear to be too high.

Some evaluative criteria for the operating statement are:

A. Percent of earning on sales - $\frac{\text{Net Profit}}{\text{Sales}}$. In our example this is $\frac{40}{200}$ = .2 or 20%. This value would have to be evaluated in relation to the products sold. For example, food has a small profit margin while jewelry has a large margin.

B. Percent of earning to net worth - $\frac{\text{Net Profit}}{\text{Total Equity Capital}}$. In our example, this is $\frac{40}{60}$ = .67 or 67 percent. This index can be compared with any enterprise.

C. Earnings per share of stock - $\frac{\text{Net Profit}}{\text{No. Shares of Common Stock}}$. In the example this is $\frac{40}{20}$ = $2.00 per share.

III. All of the evaluations noted in the past paragraphs are most meaningful when they include comparisons with previous year's results and with financial results of other enterprises engaged in the same type of business. Thus, you would want to keep these data for reference in future years. Also, you can compare the results of the student enterprises which run concurrently in your classes.

IV. Annual reports from enterprises can be very helpful in developing, analyzing, and interpreting financial statements. Your resource library should contain a variety of these reports. Most enterprises will send a copy on request.

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V. Evaluation

(See Conclusion.)

LEVEL II
LESSON FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this lesson, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor____________________ Date______________

Unit Number________ Lesson Number________ Date Lesson Started________

1. Amount of time used to complete lesson (to nearest ½ class period)________

2. Overall, this lesson is ranked as (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain____________________

3. The objectives of this lesson are (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ too broad, (e) ☐ too brief. If (c), (d), or (e) explain____________________

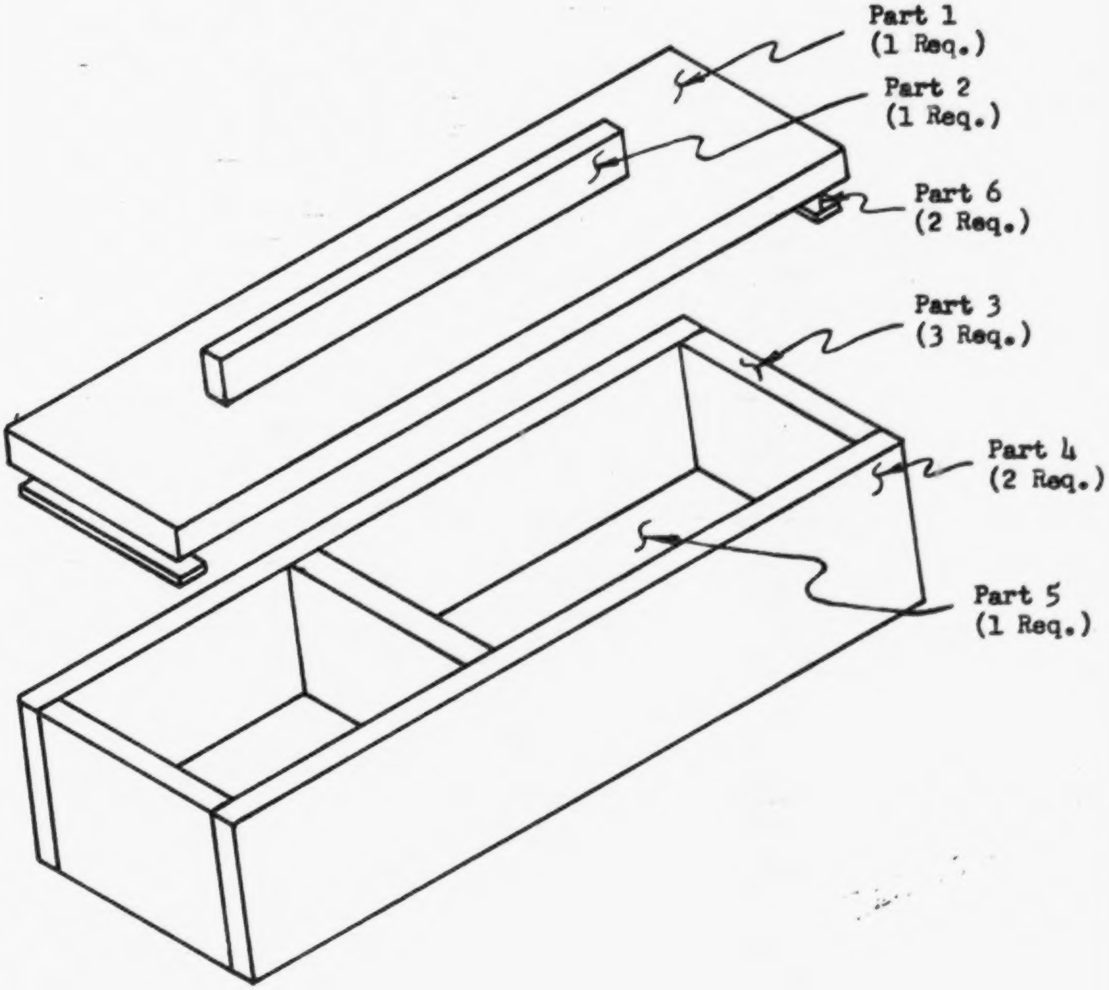
4. The scope in this lesson (a) ☐ described the lesson clearly, (b) ☐ did not describe the lesson. If (b) explain____________________

5. The content outline (a) ☐ was logical, (b) ☐ contained adequate detail, (c) ☐ was not logical, (d) ☐ did not contain enough information. If (c) and/or (d) explain____________________

6. Which activity did you use?____________________
The activity used in this lesson (a) ☐ was adequate, (b) ☐ was not adequate, (c) ☐ was developed by the instructor. If (b) or (c) explain____________________

(Be sure to fill out the items on the reverse side.)

.75



Title: Candy Box	Serial No.	Sheet 1 Of 16
Company:	Model No.	
Date:	Part No.	

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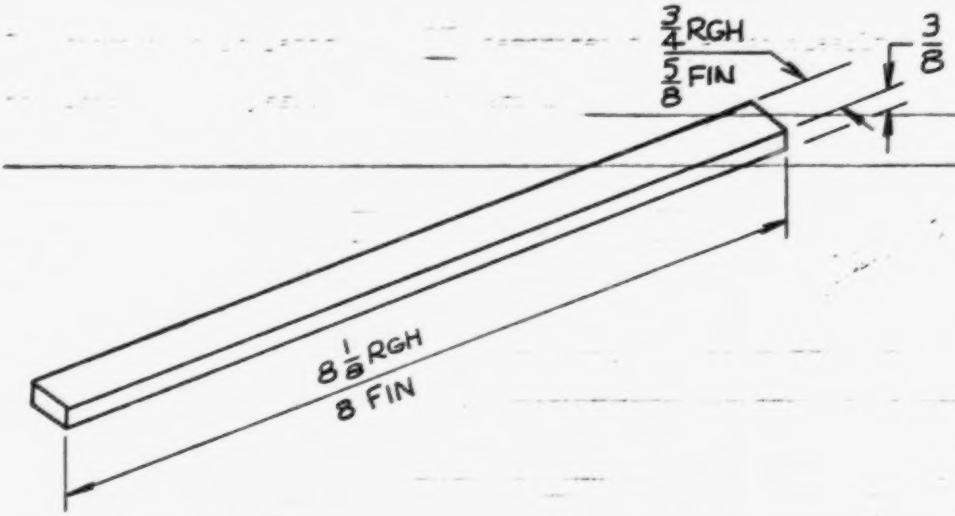
PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com.
1	Rip to 3/4"	Band Saw				
2	Cross Cut to 8 1/8	Band Saw				
3	Sand Edges	B. Sander				
4	Sand Better End	Disc Sander				
5	Sand to 8"	Disc Sander				
6	Sand Sides	B. Sander				
7	Assemble					
8						
9						
10						
11						
12						

Sketch:



Serial No.	Sheet 2 Of 16
Model No.	Part: #2
Model Name: Candy Box	Part Name: Hand

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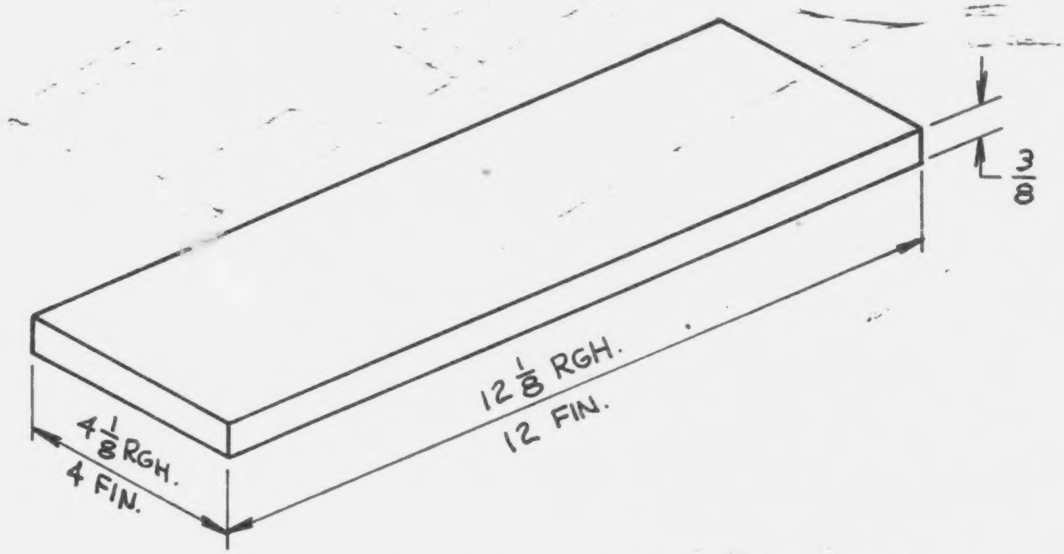
PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Rip to 4 1/8"	B. Saw				
2	Cross Cut to 12 1/8	B. Saw				
3	Sand Edge	B. Sander				
4	Sand To Width	B. Sander				
5	Sand Better End	Disc Sander				
6	Sand To 12"	Disc Sander				
7	Sand Sides	Belt Sander				
8	Assembly	Hand				
9						
10						
11						
12						

Sketch:



Serial No.	Sheet 3 Of 16
Model No.	Part: #1
Model Name: Candy Box	Part Name: Top

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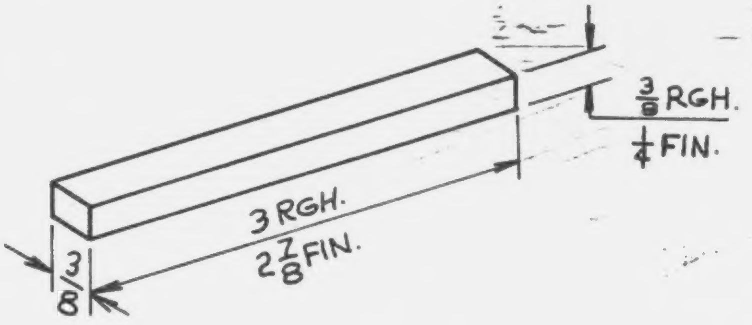
PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Rip to 3/8"	B. Saw				
2	Cross Cut to 3	B. Saw				
3	Sand Sides	B. Sander				
4	Sand Edges	B. Sander				
5	Sand First End	Disc Sander				
6	Sand to 2 7/8"	Disc Sander				
7	Assemble	Hand				
8						
9						
10						
11						
12						

Sketch:



Serial No.	Sheet 4 Of 16
Model No.	Part: #6
Model Name: Candy Box	Part Name: Cleat

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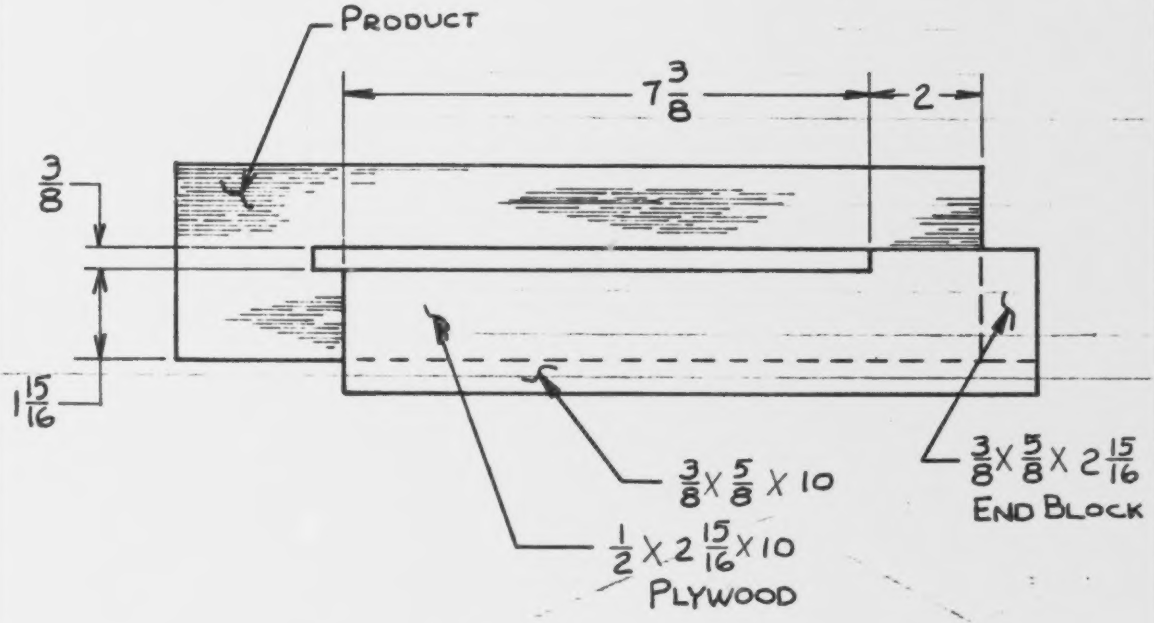
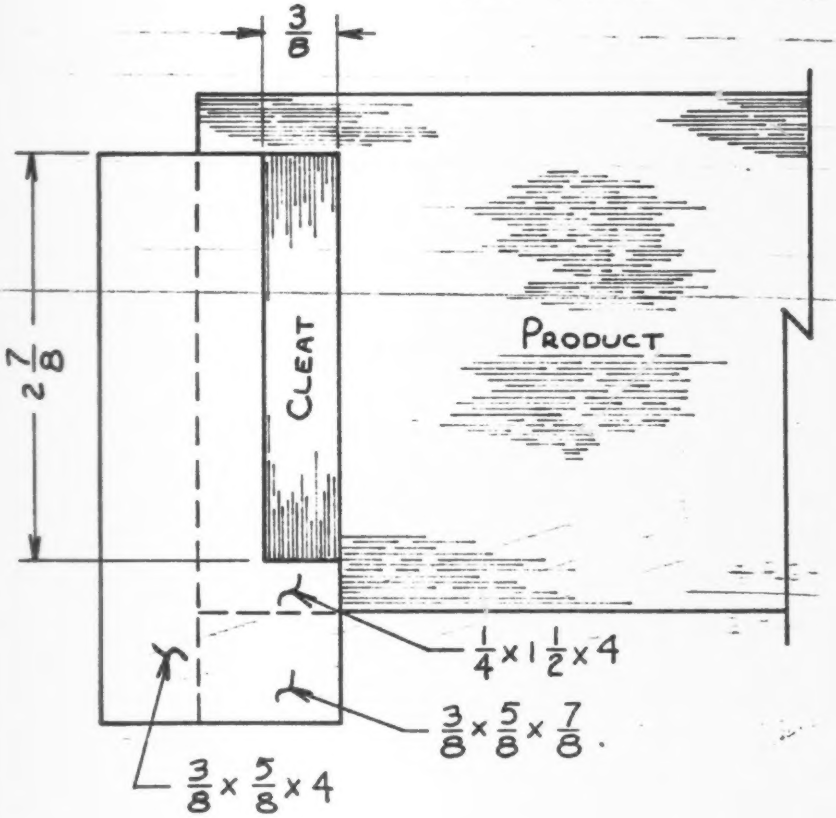


Title: Candy Box Assembly Fixture (Handle)	**Serial No.**	**Sheet** 5 **Of** 16
Company:	**Model No.**	
Date:	**Part No.**	


$\frac{3}{8}$
$2\frac{7}{8}$
CLEAT
PRODUCT
$\frac{1}{4} \times 1\frac{1}{2} \times 4$
$\frac{3}{8} \times \frac{5}{8} \times \frac{7}{8}$
$\frac{3}{8} \times \frac{5}{8} \times 4$

Title: Candy Box Assembly Fixture (Cleats)	Serial No.	Sheet 6 Of 16
Company:	Model No.	
Date:	Part No.	

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Finish Sand	Hand				
2	Finish	Hand				
3	Assemble	Hand				
4	Package	Hand				
5						
6						
7						
8						
9						
10						
11						
12						

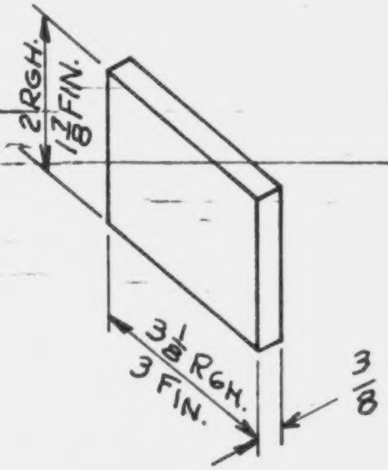
Sketch:

Serial No.	Sheet 7 Of 16
Model No.	Part: (Top)
Model Name: Candy Box	Part Name: Processes Following Assembly

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com.
1	Rip to 2"	B. Saw				
2	Cross Cut to 3 1/8	B. Saw				
3	Sand Better End	Disc Sander				
4	Sand to Length	Disc Sander				
5	Sand Poor Side	Belt Sander				
6	Assembly					

Sketch:

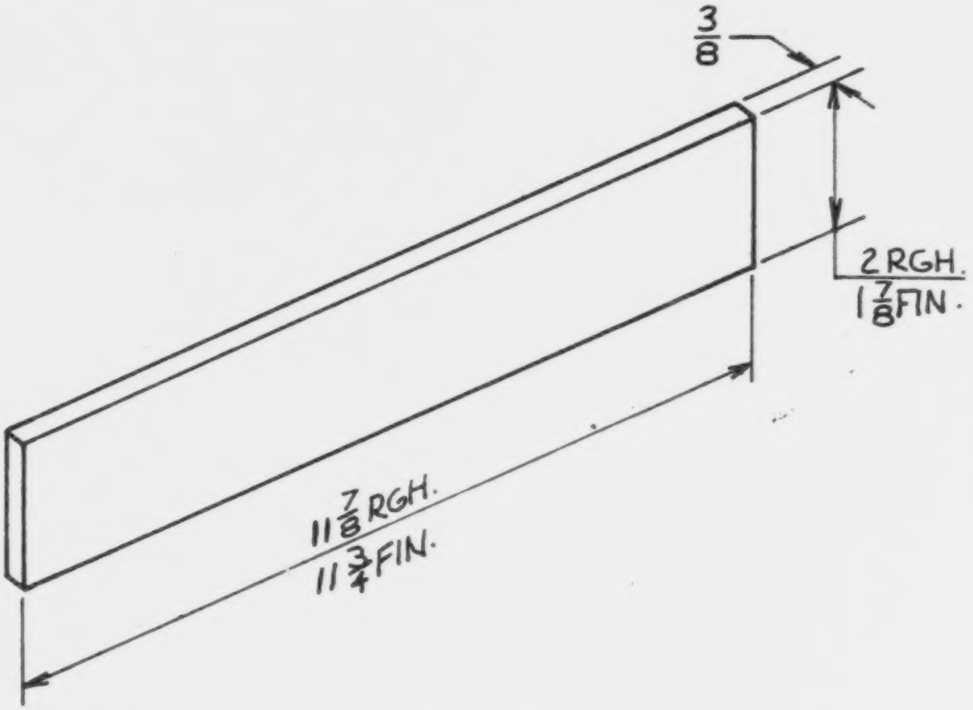


Serial No.	Sheet 8 Of 16
Model No.	Part: #3
Model Name: Candy Box	Part Name: End and Partition

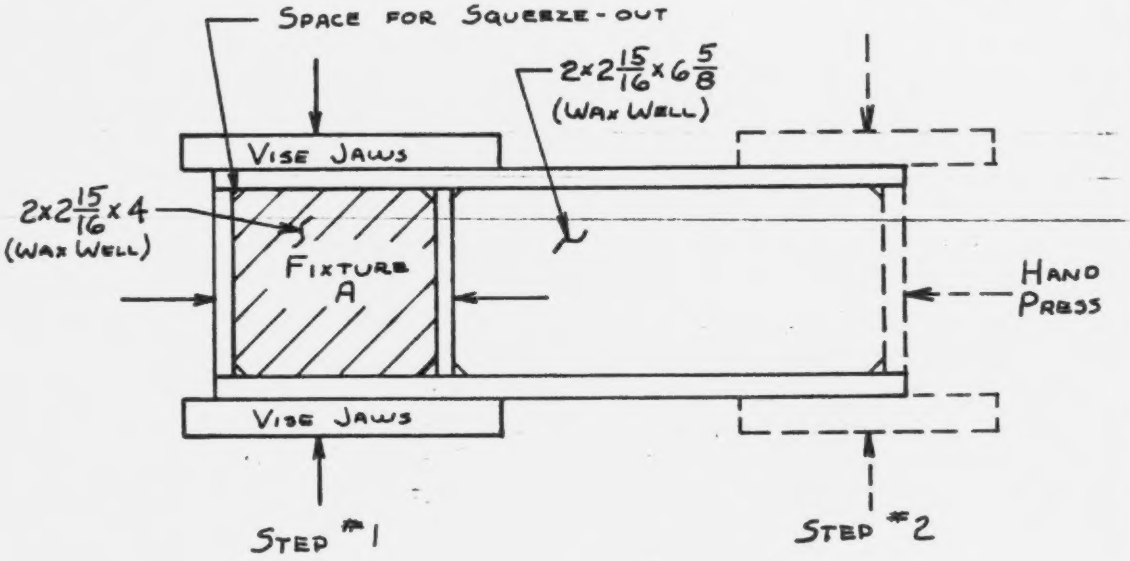
PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Rip to 2"	B. Saw				
2	Cross Cut to 11 7/8	B. Saw				
3	Sand Both Sides	B. Sander				
4	Assemble	Hand				
5						
6						
7						
8						
9						
10						
11						
12						

Sketch:



Serial No.	Sheet 9 Of 16
Model No.	Part: #4
Model Name: Candy Box	Part Name: Side

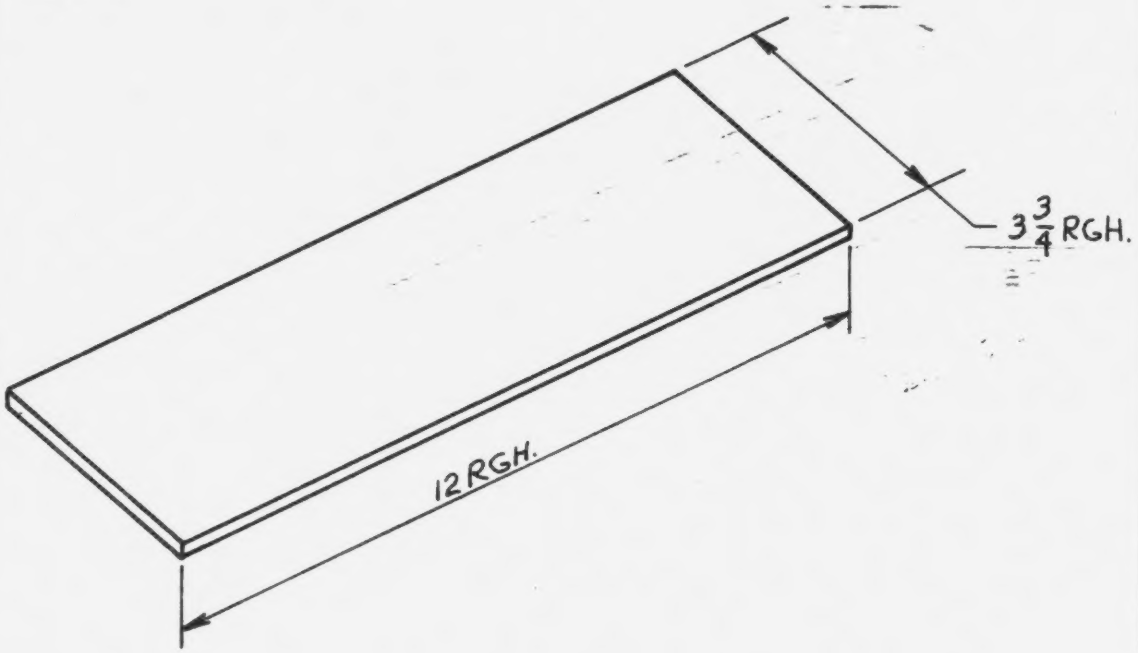


Title: Candy Box Assembly Fix. (End & Par.)	Serial No.	Sheet 10 Of 16
Company:	Model No.	
Date:	Part No.	

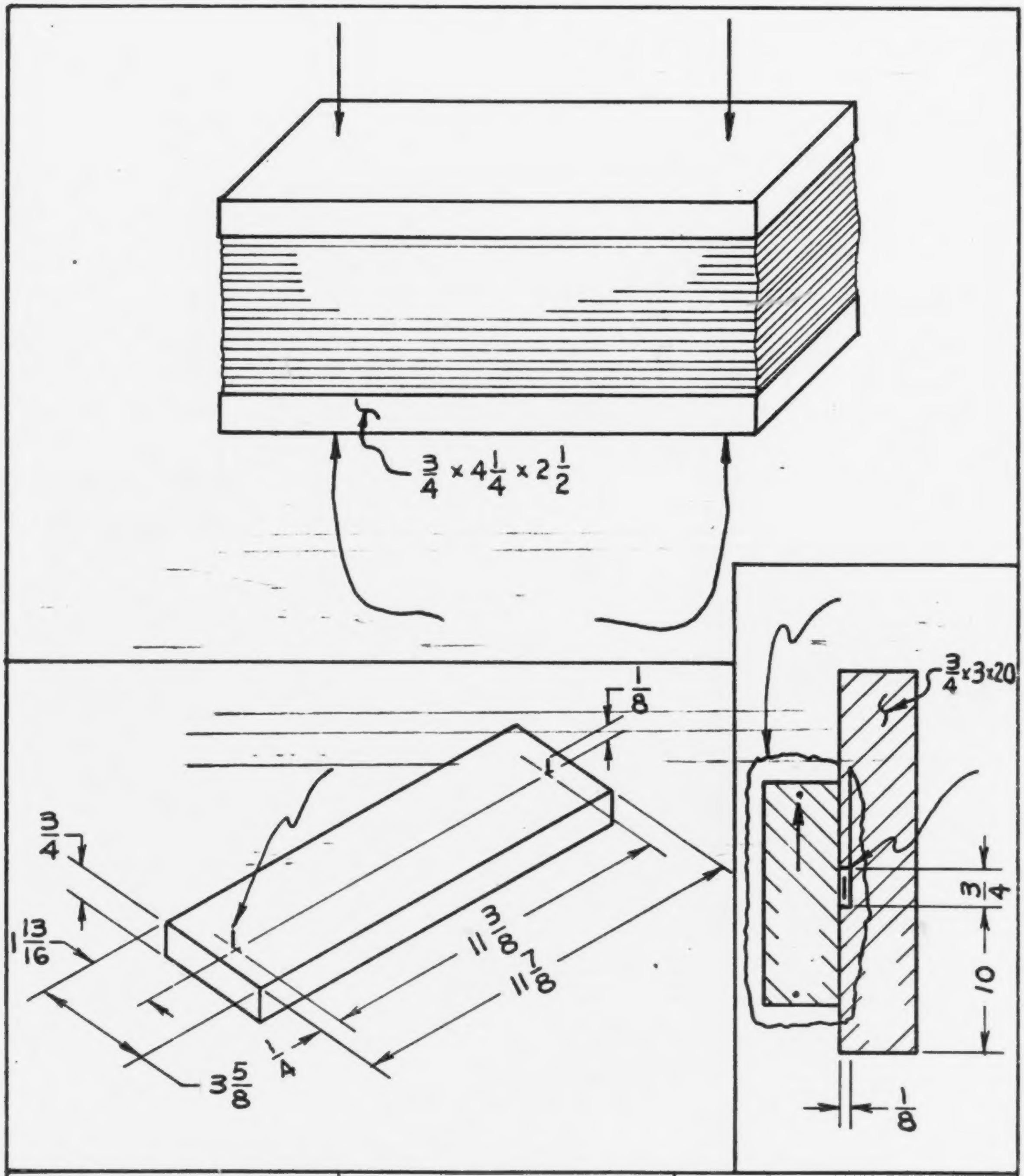
PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Cross Cut Face Veneer (12 1/2")	P. Cutter				
2	Rip Face Veneer 4 1/4"	P. Cutter				
3	Cross Cut Core 4 1/4"	P. Cutter				
4	Rip Core 12 1/2"	P. Cutter				
5	Press	Press or "C" Clamps				
6	Cut to RGH Size	B. Saw				
7	Sand Better Side	P. Belt Sand Hand				
8	Assemble					
9						
10						
11						
12						

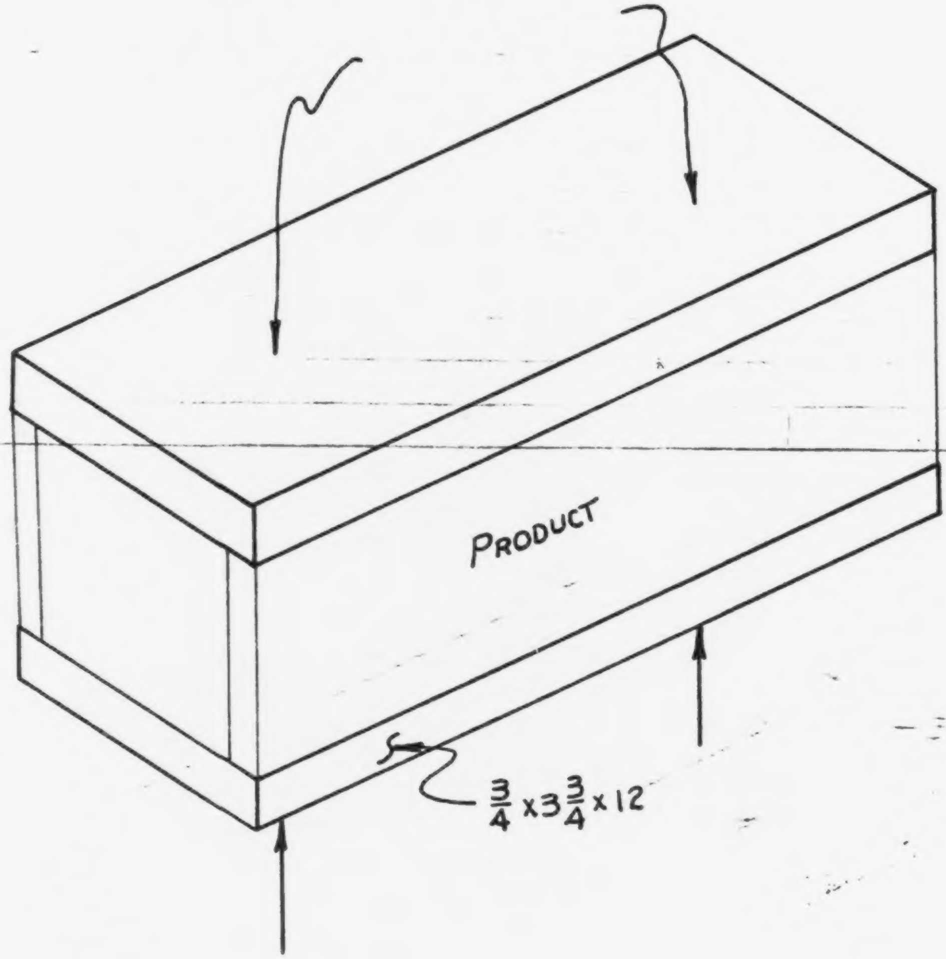
Sketch:



Serial No.	Sheet 12 Of 16
Model No.	Part: #5
Model Name: Candy Box	Part Name: Bottom



Title: Candy Box P. P. Cutting Fix. (Bot)	Serial No.	Sheet 13 Of 16
Company:	Model No.	
Date:	Part No.	



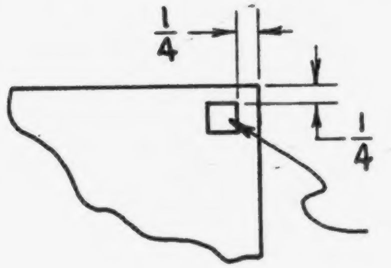
Title: Candy Box Assembly Fixture (Bottom)	Serial No.	Sheet 14 Of 16
Company:	Model No.	
Date:	Part No.	

149

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	RGH Sand Ends	Disc Sander				
2	Sand Ends	B. Sander				
3	Sand Sides	B. Sander				
4	Finish Sanding	Hand				
5	Finish	Hand				
6	Put On Felt Tabs	Hand				
7	Assemble	Hand				
8	Package	Hand				
9						
10						
11						
12						

Sketch:



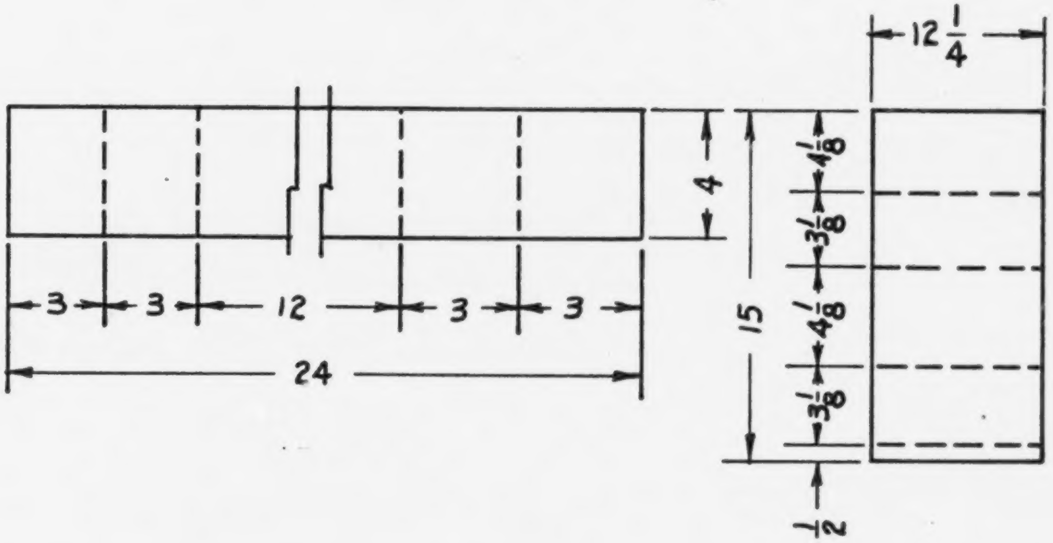
Serial No.	Sheet 15 Of 16
Model No.	Part: (Bottom to Body)
Model Name: Candy Box	Part Name: Processes After Assembly

440

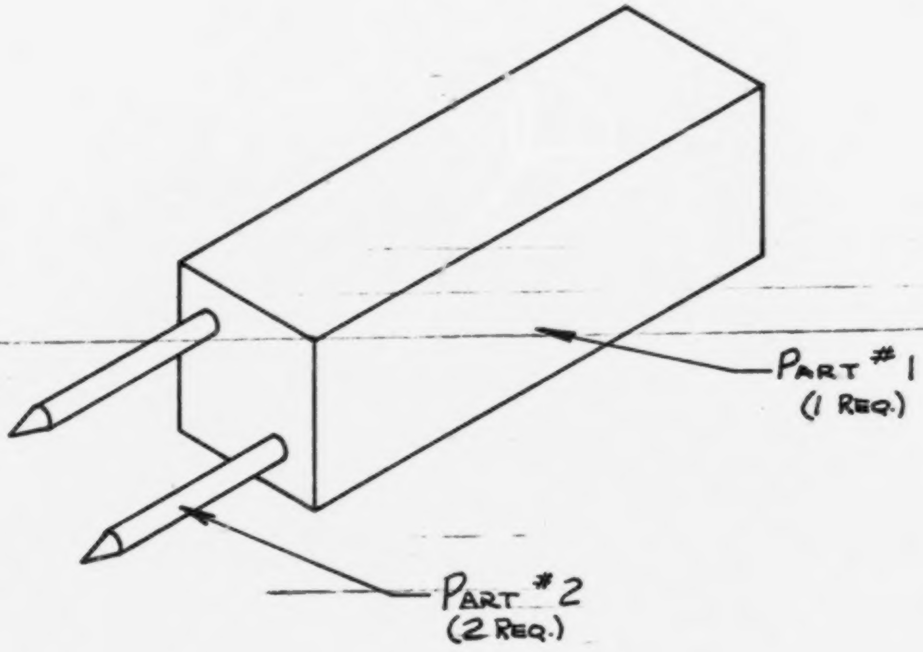
PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	See Corn Skewer Holder for Details for Scoring,					
2	Fixture Details and Assembly Techniques					
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Sketch:



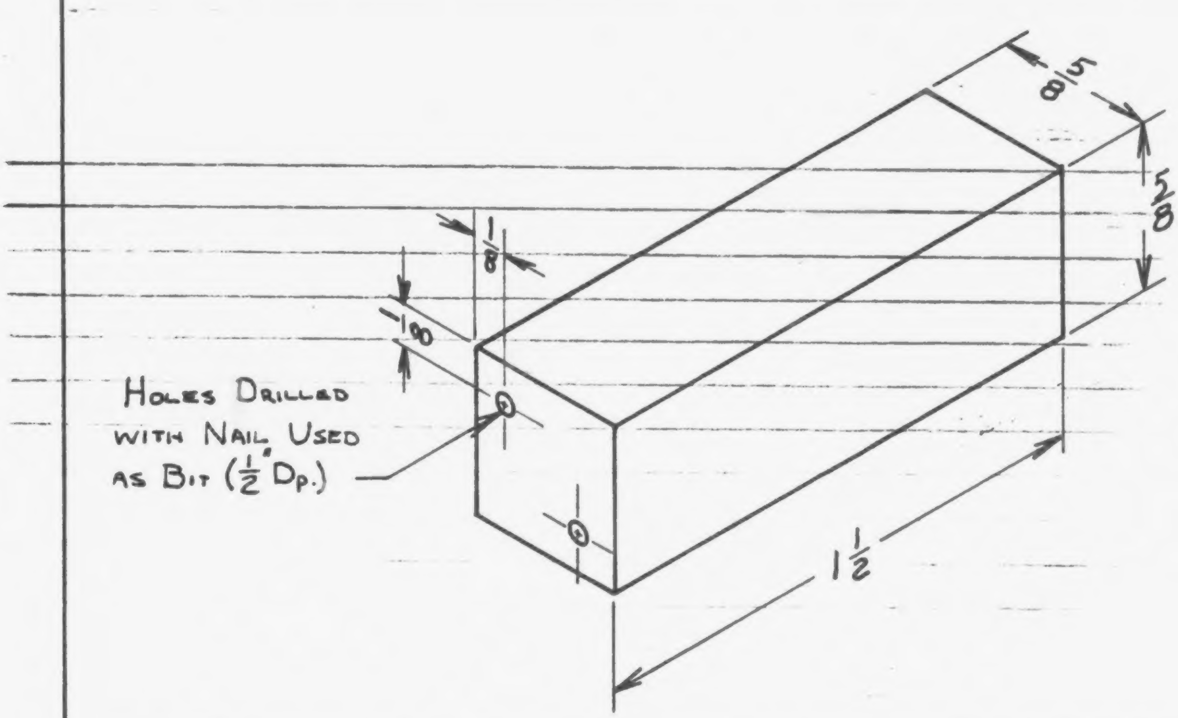
Serial No.	Sheet 16 Of 16
Model No.	Part: P-1 P-2
Model Name: Candy Box Package	Part Name: Shell and Liner



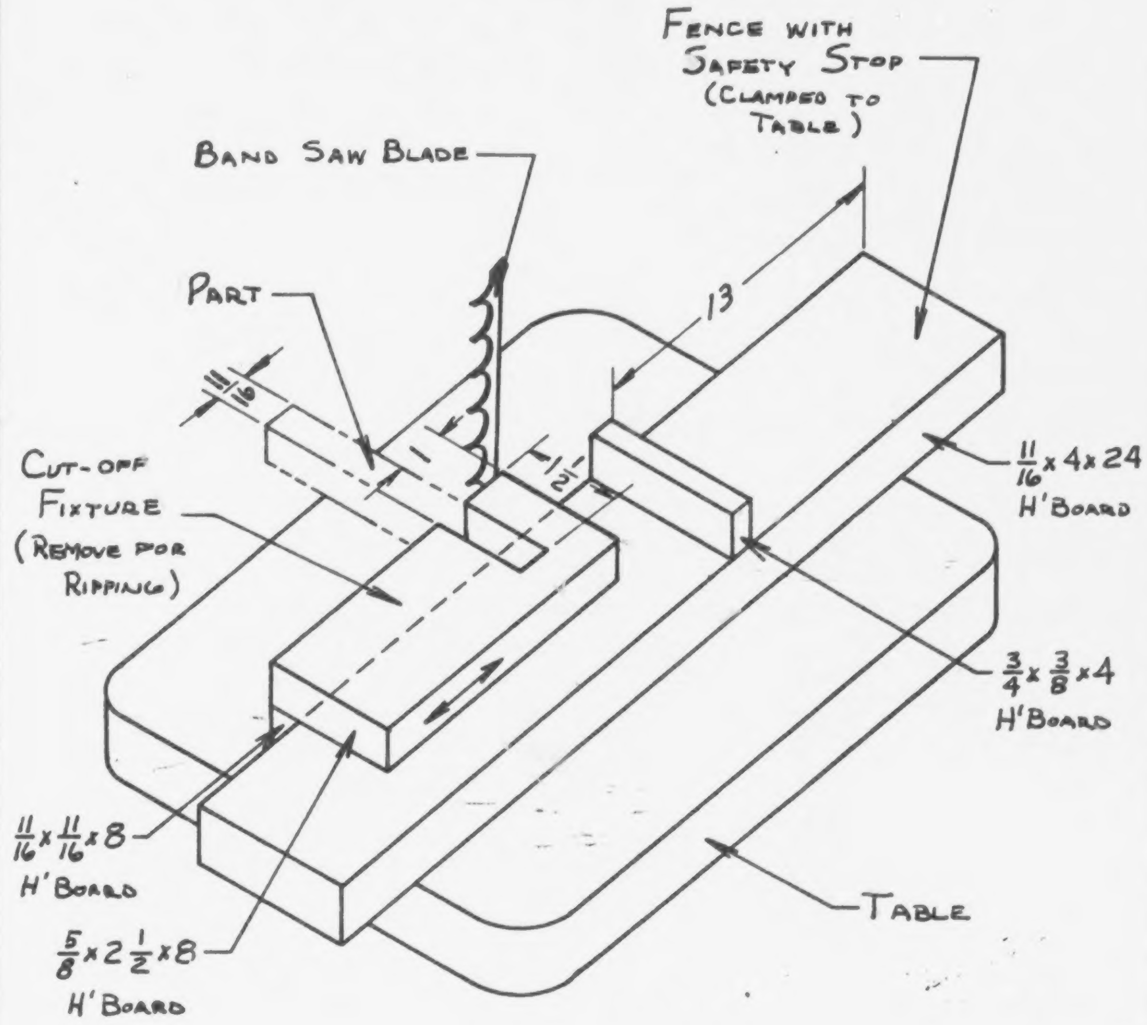
Title: Corn Skewer	Serial No.	Sheet 1 Of 8
Company:	Model No.	
Date:	Part No.	

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Rip Width 11/16	B. Saw				
2	Rip Thickness 11/16	B. Saw				
3	Crosscut 1 9/16	B. Saw				
4	Sand Ends	D. Sander				
5	Sand Sides	B. Sander				
6	Hand Sand	Hand				
7	Drill Holes	Drill Press				
8	Assemble					
9						
10						
11						
12						



Serial No.	Sheet 2 Of 8
Model No.	Part: 1
Model Name: Corn Skewer	Part Name: Body

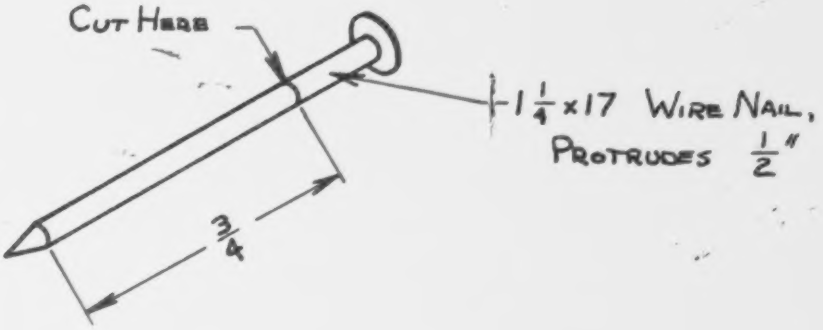

FENCE WITH SAFETY STOP (CLAMPED TO TABLE)
BAND SAW BLADE
PART
13
11/16
1
1 1/2
CUT-OFF FIXTURE (REMOVE FOR RIPPING)
11/16 x 4 x 24 H'BOARD
3/4 x 3/8 x 4 H'BOARD
11/16 x 11/16 x 8 H'BOARD
5/8 x 2 1/2 x 8 H'BOARD
TABLE

Title: Corn Skewer Ripping & Cut-off Fixture	Serial No.	Sheet 3 Of 8
Company:	Model No.	
Date:	Part No.	

14

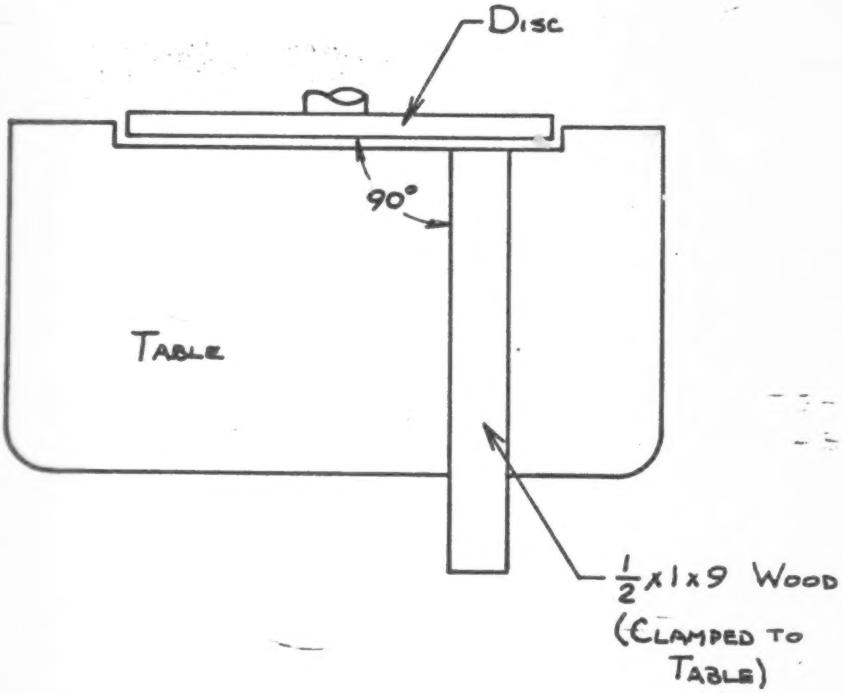
PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Cut to Length	Elec. Pliers				
2	Assemble					
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

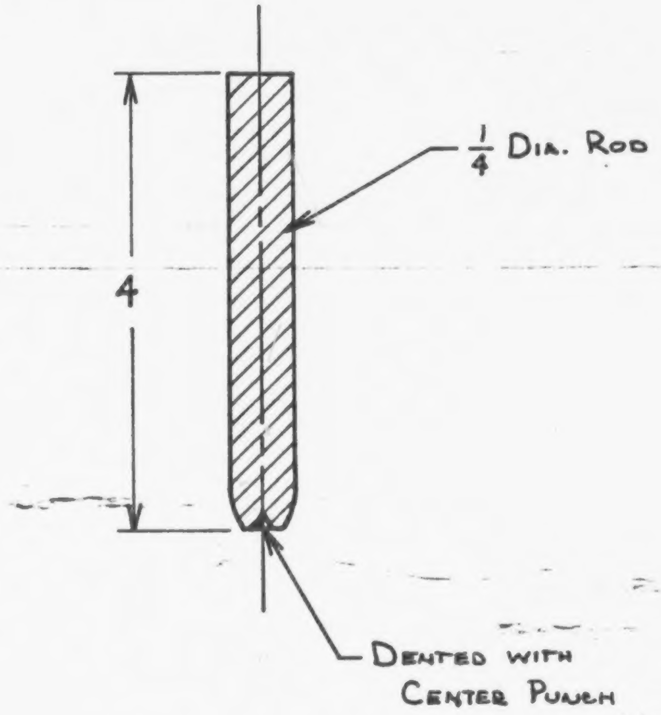


Serial No.	Sheet 4 Of 8
Model No.	Part: 2
Model Name: Corn Skewer	Part Name: Nail

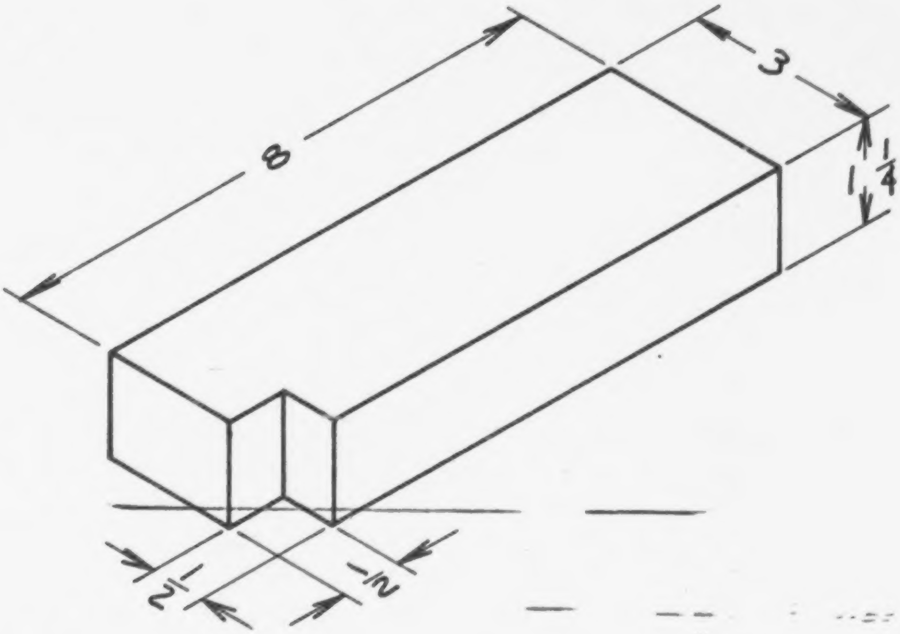
75



Title: Corn Skewer Disc Sander Fixture	Serial No.	Sheet 5 Of 8
Company:	Model No.	
Date:	Part No.	



Title: Corn Skewer Nail Pressing Fixture	Serial No.	Sheet 6 Of 8
Company:	Model No.	
Date:	Part No.	

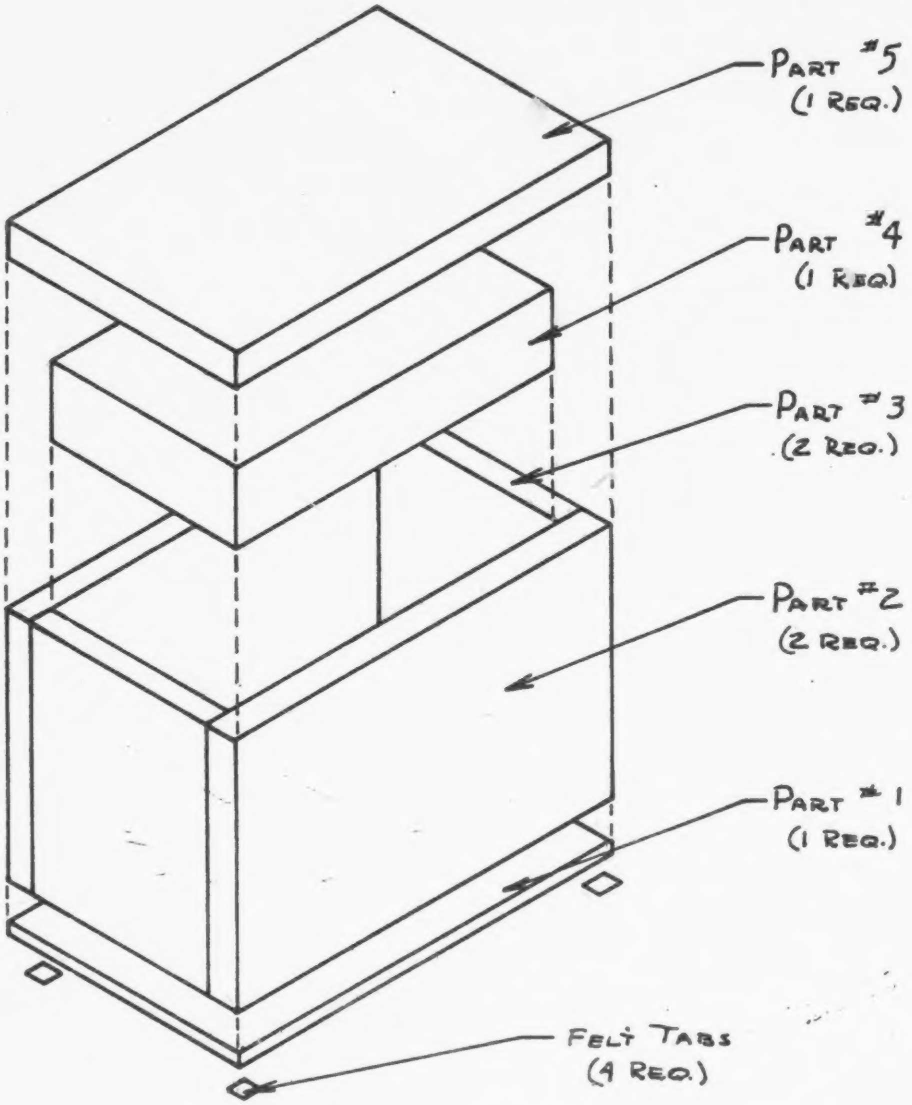


Title: Corn Skewer Drilling & Nail Pressing Fixture	Serial No.	Sheet 7 Of 8
Company:	Model No.	
Date:	Part No.	

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Final Inspection	Hand				
2	Finish Application	Hand				
3	Soak Overnight					
4	Package					
5						
6						
7						
8						
9						
10						
11						
12						

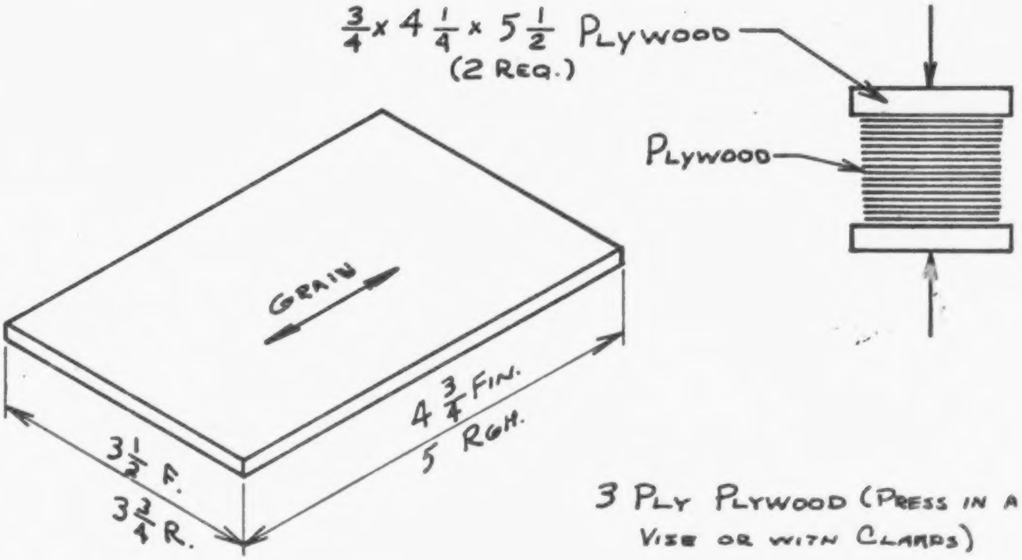
Serial No.	Sheet 8 Of 8
Model No.	Part:
Model Name: Corn Skewer	Part Name: Processes After Assembly



Title: Corn Skewer Holder II	Serial No.	Sheet 1 Of 11
Company:	Model No.	
Date:	Part No.	

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	#Com
1	Cut Veneer	Sq. Shear or				
2	Apply Adhesive	Paper Cutter Paint Roller				
3	Press	Vise or "C"				
4	Trim First Edge	Clamps B. Saw				
5	Cut to Width (3 3/4)	B. Saw				
6	Cut First End	B. Saw				
7	Cut to Length (5)	B. Saw				
8	Sand Good Side	P. B. Sander				
9	Assemble	or Orbital S.				
10						
11						
12						

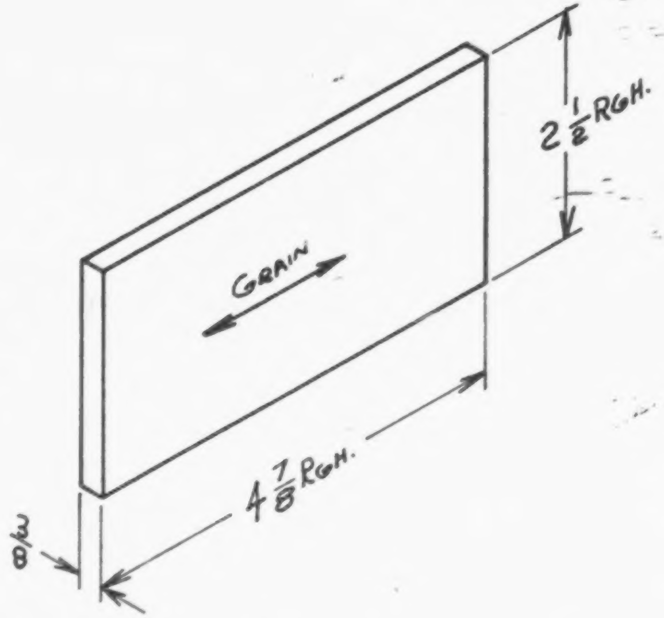


3 Ply Plywood (Press in a Vise or with Clamps)

Serial No.	Sheet 2 Of 11
Model No.	Part: 1
Model Name: Corn Skewer Holder II	Part Name: Bottom

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Rip to 2 5/8	B. Saw				
2	Crosscut to 4 7/8	B. Saw				
3	Sand Poor Side	B. Sander				
4						
5						
6						
7						
8						
9						
10						
11						
12						

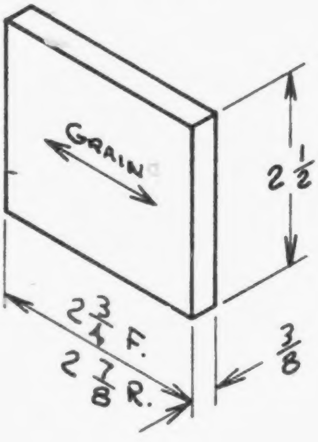


Serial No.	Sheet 3 Of 11
Model No.	Part: 2
Model Name: Corn Skewer Holder II	Model Part: Side

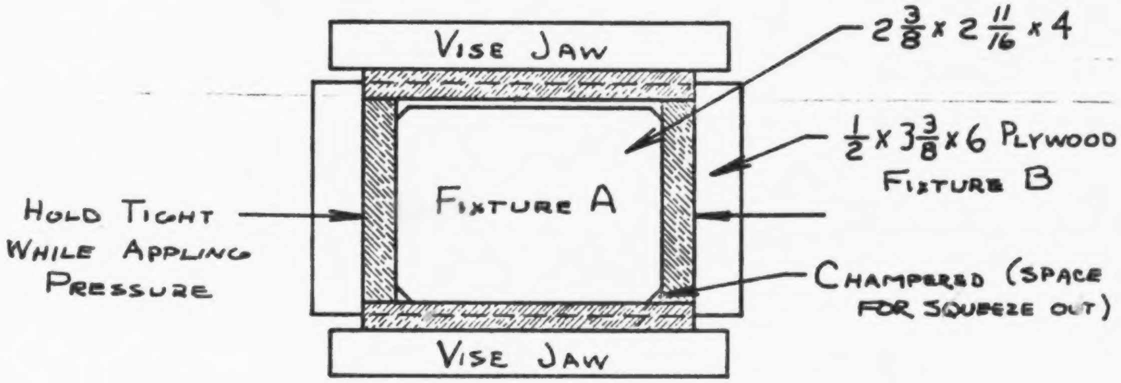
62

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Rip to 2 1/2 Rgh.	B. Saw				
2	Crosscut to 2 7/8 Rgh.	B. Saw				
3	Sand First End Sq.	D. Sander				
4	Sand to Length (2 3/4)	D. Sander				
5	Sand Poor Side	B. Sander				
6	Assemble					
7						
8						
9						
10						
11						
12						



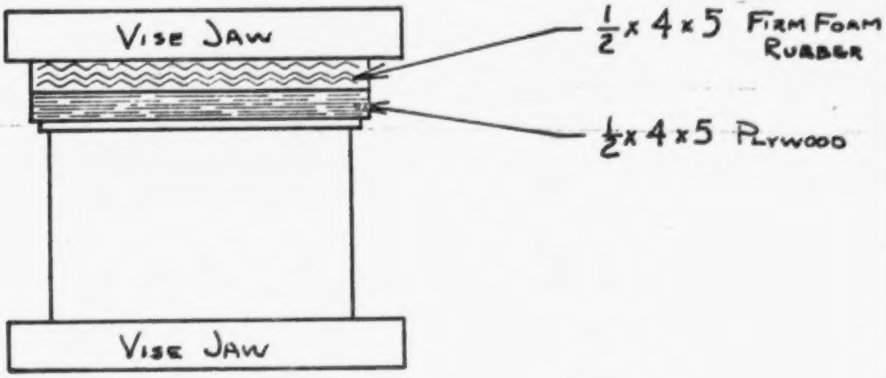
Serial No.	Sheet 4 Of 11
Model No.	Part:
Model Name: Corn Skewer Holder II	Part Name: End



Note: After Assembly, Sand Top & Bottom Flat

Title: Corn Skewer Holder II--Assembly	Serial No.	Sheet 5 Of 11
Company:	Model No.	
Date:	Part No. Fixtures A & B	

4



Title: Corn Skewer Holder II	Serial No.	Sheet 6 Of 11
Company:	Model No.	
Date:	Part No. Fixture [illegible]	

505

PRODUCTION ORDER

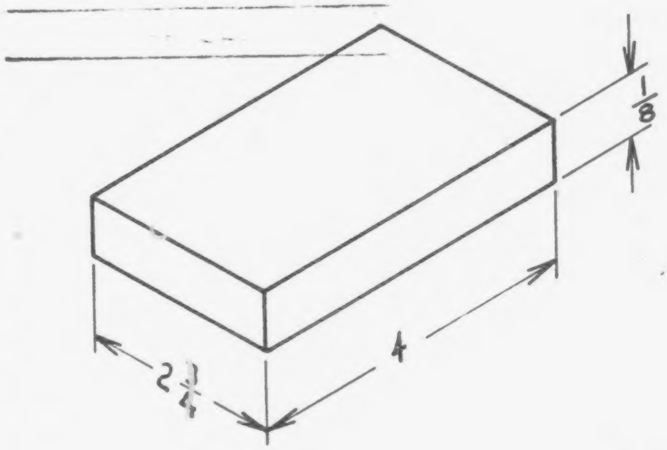
	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Sand Ends	B. Sander				
2	Sand Sides	B. Sander				
3	Finish Sand	Hand				
4	Finish	Hand				
5	Put on Felt Tabs	Hand				
6	Assemble With Top	Hand				
7	Package	Hand				
8						
9						
10						
11						
12						

Serial No.	Sheet 7 Of 11
Model No.	Part: Processes After Assembly (Box)
Model Name: Corn Skewer Holder II	Part Name:

I - VII - SAAS #3

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Rip to 2 3/4	B. Saw				
2	Crosscut to 4	B. Saw				
3	Assemble	Hand				
4						
5						
6						
7						
8						
9						
10						
11						
12						

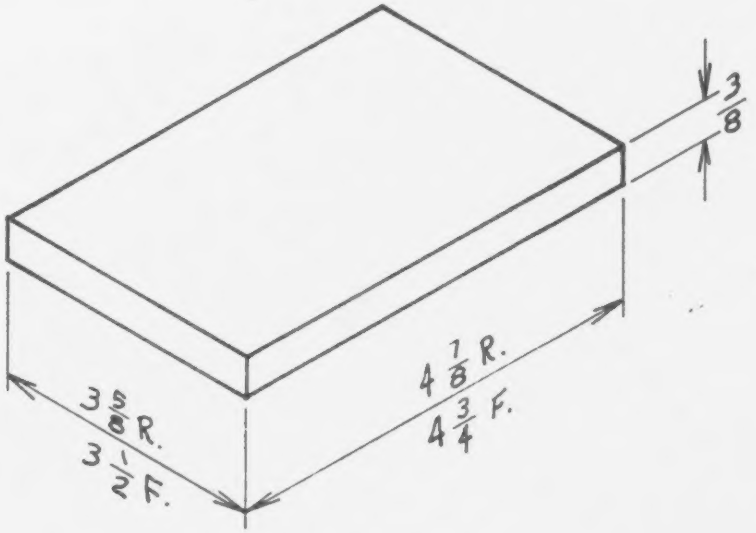


Serial No.	Sheet 8 Of 11
Model No.	Part: 4
Model Name: Corn Skewer Holder II	Part Name: Friction Pad

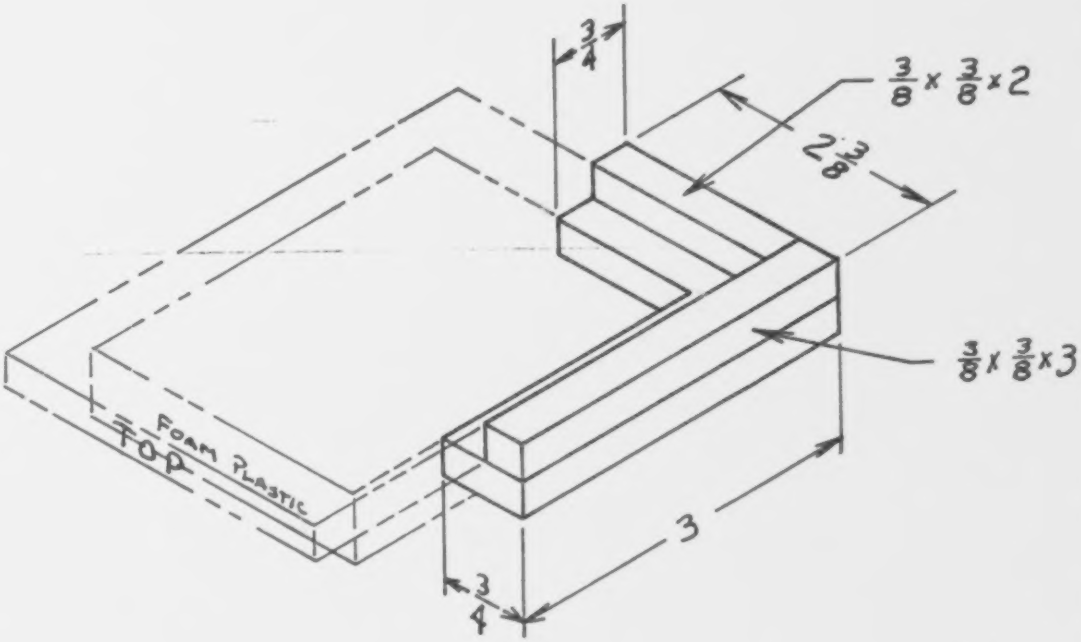
27

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Rip to 3 5/8	B. Saw				
2	Crosscut to 4 7/8	B. Saw				
3	Sand First Edge	B. Sander				
4	Sand Width (3 1/2)	B. Sander				
5	Sand First End Sq.	B. Sander				
6	Sand to Length (4 3/4)	B. Sand				
7	Sand Both Sides	B. Sander				
8	Finish Sand	Hand				
9	Finish	Hand				
10	Assemble					
11						
12						



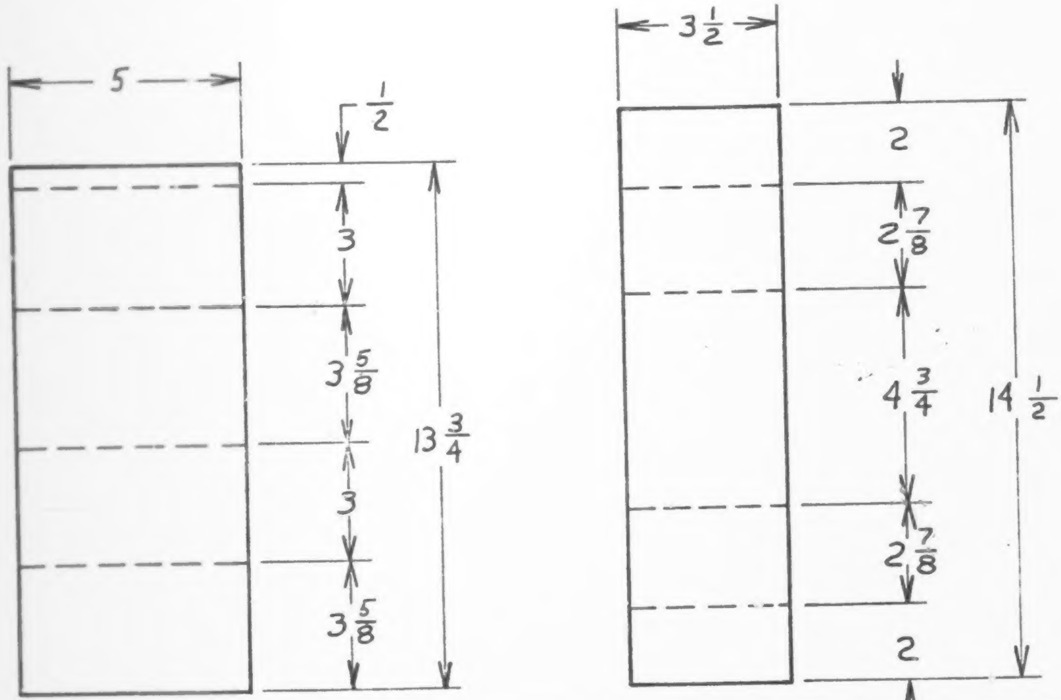
Serial No.	Sheet 9 Of 11
Model No.	Parts: 1
Model Name: Corn Skewer Holder II	Part Name: Top


$\frac{3}{4}$
$\frac{3}{8} \times \frac{3}{8} \times 2$
$2\frac{3}{8}$
$\frac{3}{8} \times \frac{3}{8} \times 3$
FOAM PLASTIC
TOP
3
$\frac{3}{4}$

Title: Corn Skewer Holder II	Serial No.	Sheet 10 Of 11
Company:	Model No.	
Date:	Part No. Fixture I	

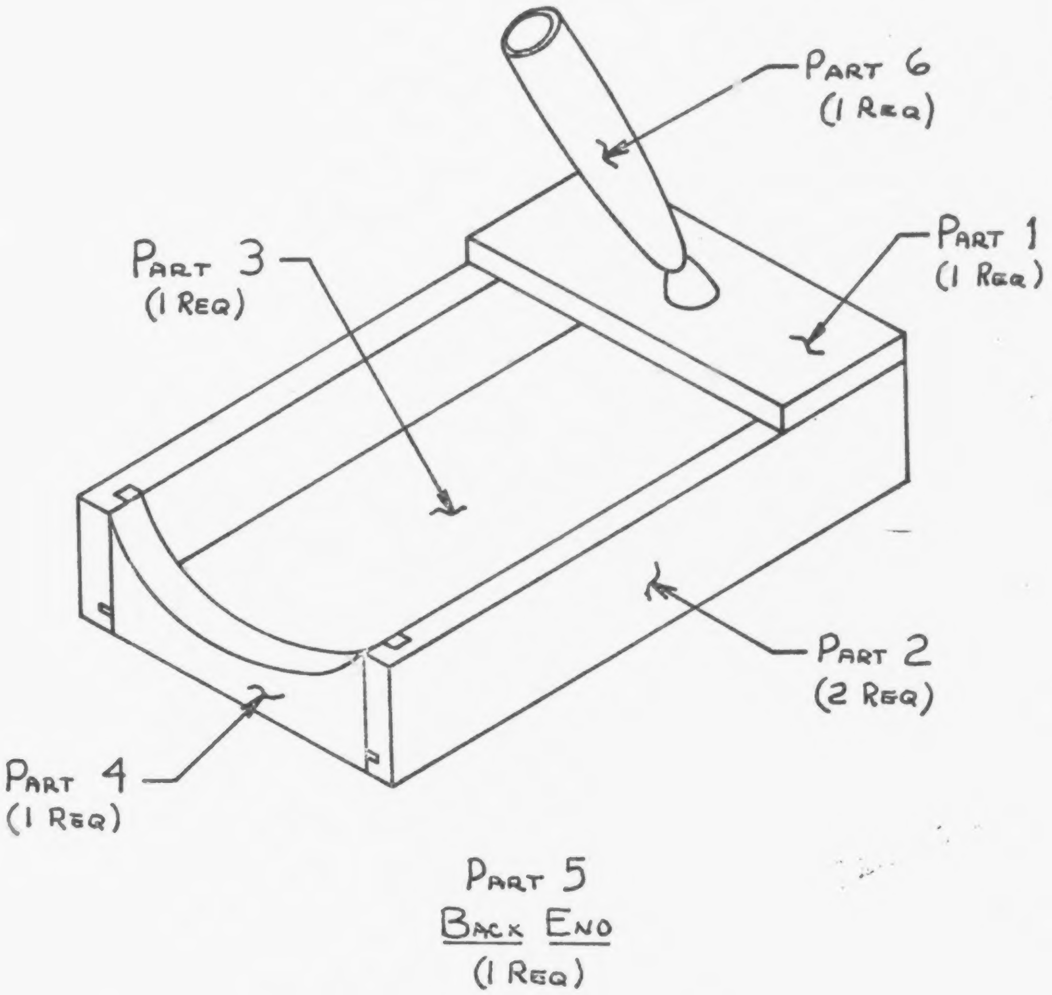
PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	See Corn Skewer Holder I for Scoring Fixture Details,					
2	Assembly Details and Techniques.					
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						



Serial No.	Sheet 11 Of 11
Model No.	Part: P-1 and P-2
Model Name: Corn Skewer Holder II	Part Name: Shell and Liner

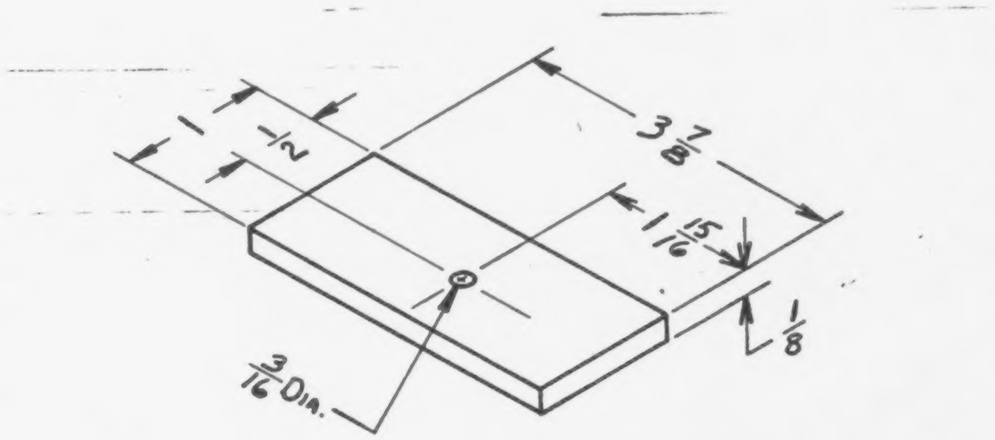
LEVEL I - American Industry
UNIT VII - The Students' Business Venture
Student Activity Assignment Sheet #4



Title: Pen Set	Serial No.	Sheet 1 Of 12
Company:	Model No.	
Date:	Part No.	

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Surface to 1/8	Surfacer				
2	Joint Better Edge	Jointer				
3	Rip to 1 1/16	Var. Saw				
4	Joint to 1	Jointer				
5	Crosscut to 3 7/8	Var. Saw				
6	Assemble	Hand				
7						
8						
9						
10						
11						
12						

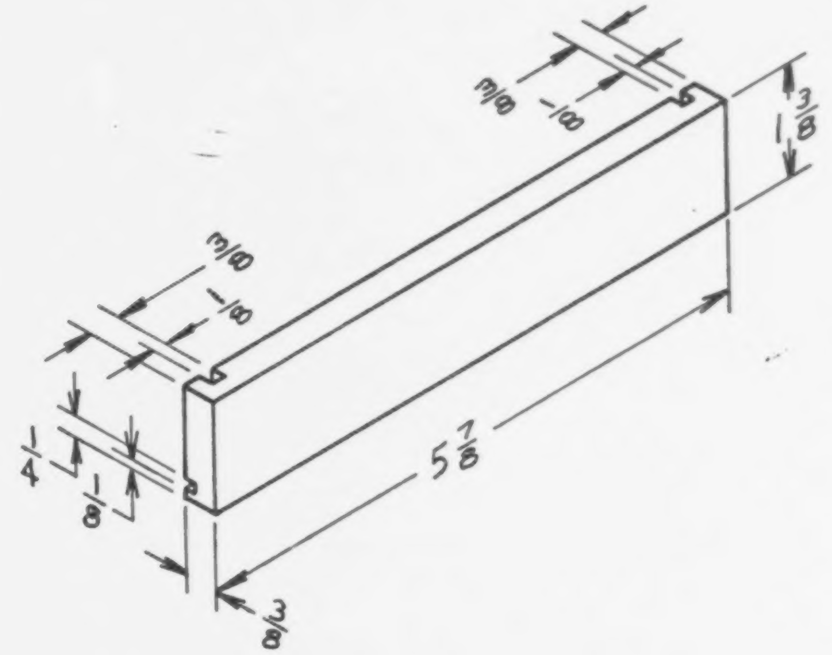


Serial No.	Sheet 2 Of 12
Model No.	Part: 1
Model Name: Pen Set	Part Name: Top

2

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Surface to 3/8	Surfacer				
2	Joint Better Edge	Jointer				
3	Rip to 1	Var. Saw				
4	Crosscut to 5 7/8	Var. Saw				
5	Smooth Inside	B. Sander				
6	Assemble	Hand				
7						
8						
9						
10						
11						
12						

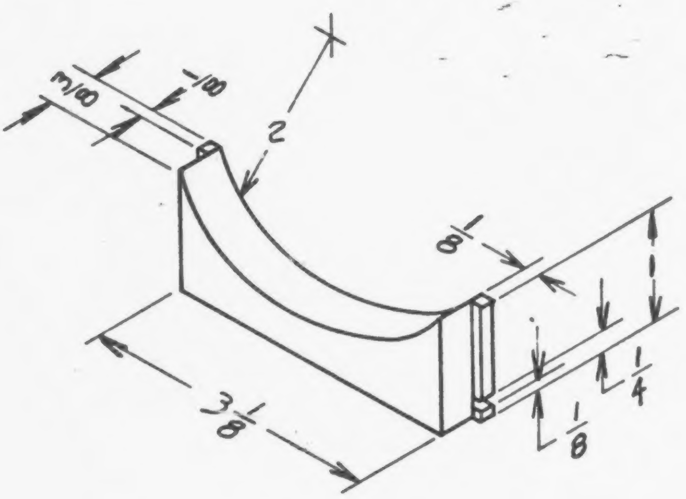


Serial No.	Sheet 3 of 12
Model No.	Part: 2
Model Name: Cigarette Box	Part Name: Side

3

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Surface to 3/8	Surfacer				
2	Rip to 1	Var. Saw				
3	Crosscut to 3 3/8	Var. Saw				
4	Sand Contour	B. Sander				
5	Sand Inside	B. Sander				
6	Assemble	Hand				
7						
8						
9						
10						
11						
12						

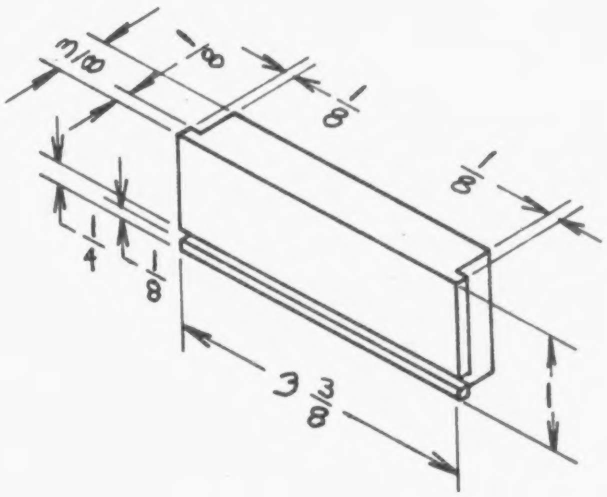


Serial No.	Sheet 4 Of 12
Model No.	Part: 4
Model Name: Pen Set	Part Name: Front End

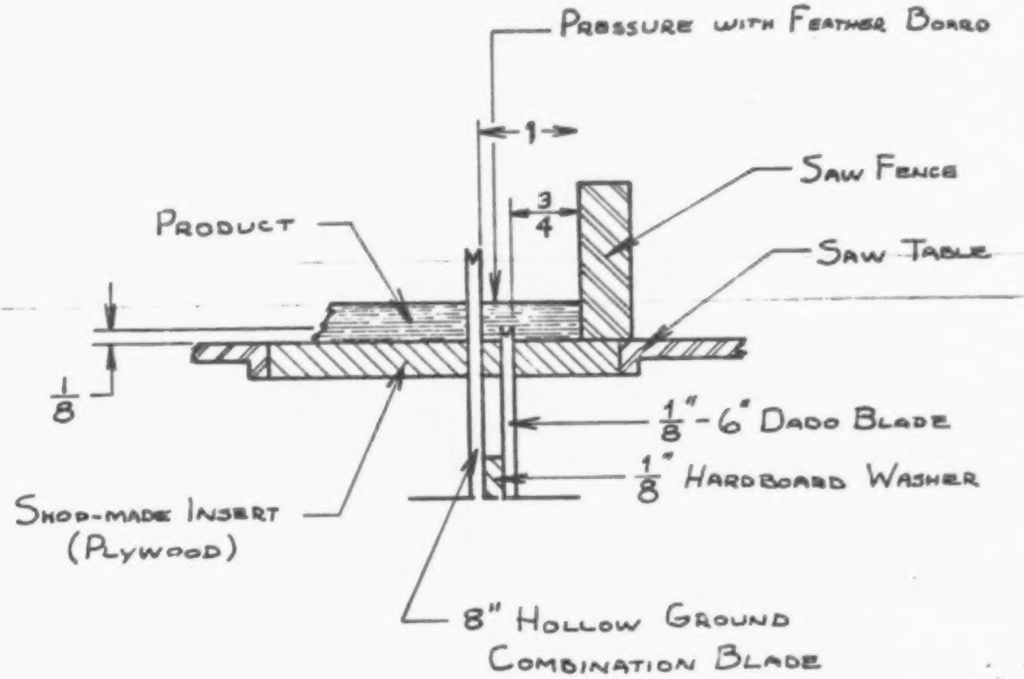
I - VII - SAAS #4

PRODUCTION ORDER

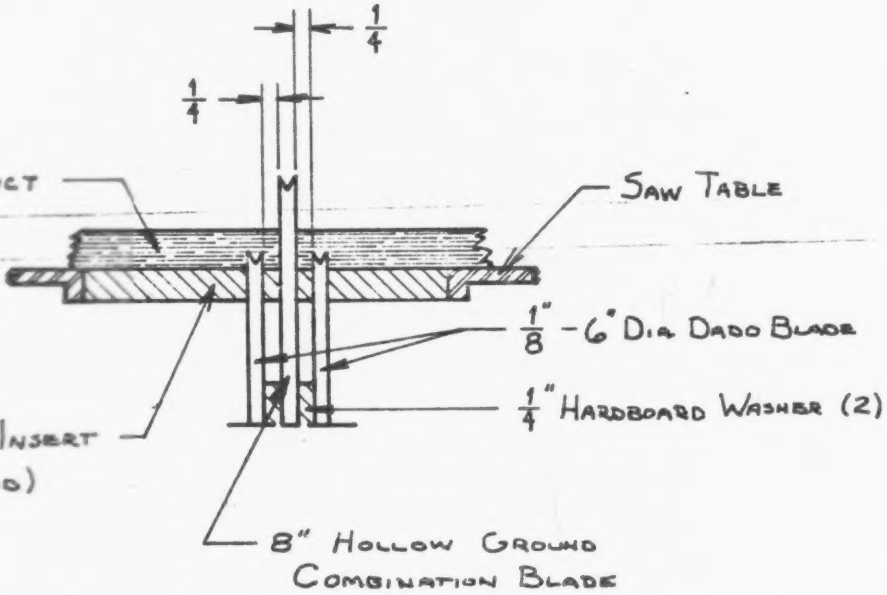
	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Surface to 3/8	Surfacer				
2	Joint Better Edge	Jointer				
3	Rip to 1	Var. Saw				
4	Crosscut to 3 3/8	Var. Saw				
5	Sand Inside	B. Sander				
6	Assemble	Hand				
7						
8						
9						
10						
11						
12						



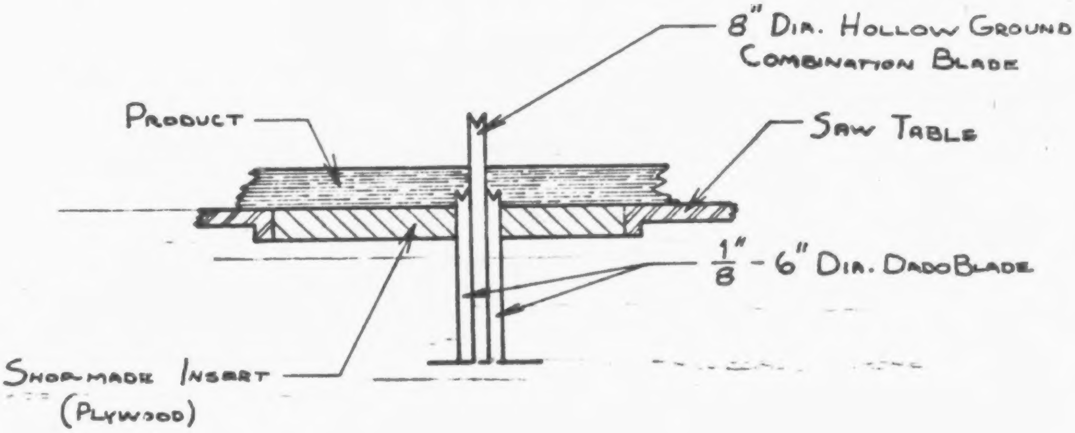
	Sheet 5 Of 12
Serial No.	
Model No.	Part: 5
Model Name: Pen Set	Part Name: Rack


PRESSURE WITH FEATHER BOARD
1
SAW FENCE
3/4
PRODUCT
SAW TABLE
1/8
1/8"-6" DADO BLADE
1/8" HARDBOARD WASHER
SHOP-MADE INSERT (PLYWOOD)
8" HOLLOW GROUND COMBINATION BLADE

Title: Pen Set Tooling for Ripping Sides & Ends	Serial No.	Sheet 6 Of 12
Company:	Model No.	
Date:	Part No.	



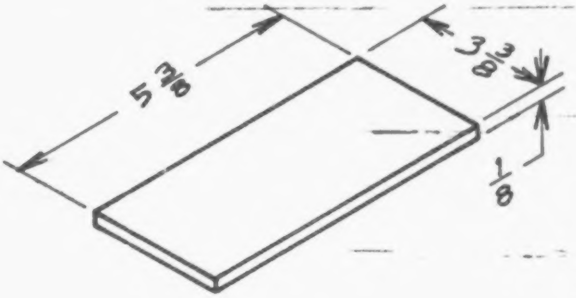
Title: Pen Set Tooling for Crosscutting Sides to Length	Serial No.	Sheet 7 Of 12
Company:	Model No.	
Date:	Part No.	


8" Dia. Hollow Ground Combination Blade
Product
Saw Table
1/8" - 6" Dia. Dado Blade
Shop-made Insert (Plywood)

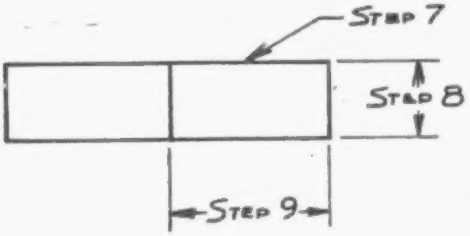
Title: Pen Set Tooling for Crosscutting Ends to Length	Serial No.	Sheet 8 Of 12
Company:	Model No.	
Date:	Part No.	

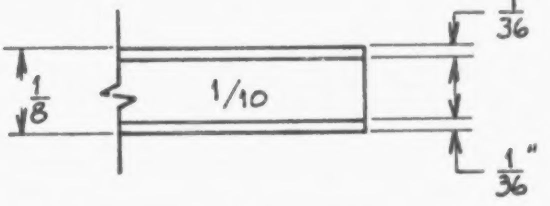
PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Crosscut to 12 (Face)	P. Cutter				
2	Rip to 4 (Face)	P. Cutter				
3	Rip to 12 (Core)	P. Cutter				
4	Crosscut to 4 (Core)	P. Cutter				
5	Press	Press				
6	Sand Both Sides	B. Sander				
7	Joint Better Edge	Jointer				
8	Rip to 3 3/8	Var. Saw				
9	Crosscut to 5 3/8	Var. Saw				
10	Assemble	Hand				
11						
12						



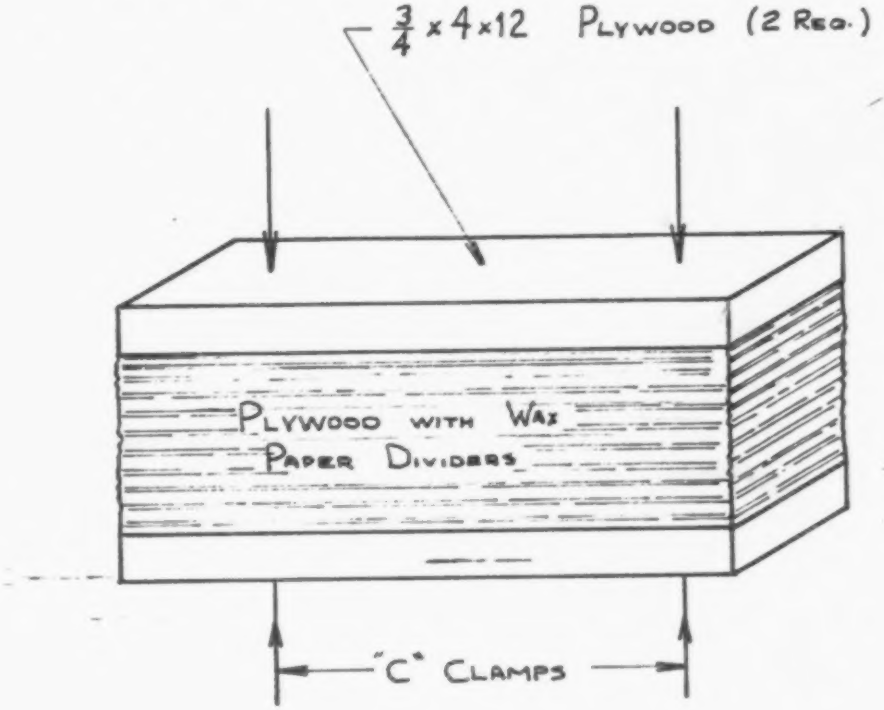
Cutting Sequence





Plywood Construction

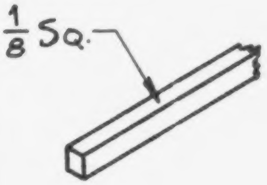
Serial No.	Sheet 9 Of 12
Model No.	Part:
Model Name: Pen Set	Part Name: Bottom

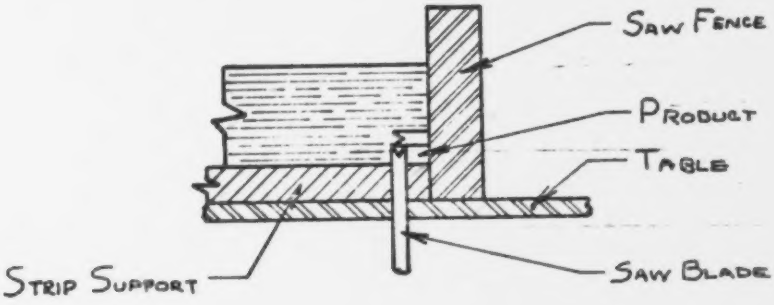

$\frac{3}{4}$ x 4 x 12 PLYWOOD (2 REQ.)
PLYWOOD WITH WAX PAPER DIVIDERS
"C" CLAMPS

Title: Pen Set Plywood Press	Serial No.	Sheet 10 Of 12
Company:	Model No.	
Date:	Part No.	

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	Sand Top & Bottom	B. Sander				
2	Assemble Top	Hand				
3	Plug Holes	Hand				
4	Sand Sides & Ends	B. Sander				
5	Finish Sand	Hand				
6	Finish	Hand				
7	Assemble Pen	Hand				
8	Put on Felt Tabs	Hand				
9	Package	Hand				
10						
11						
12						

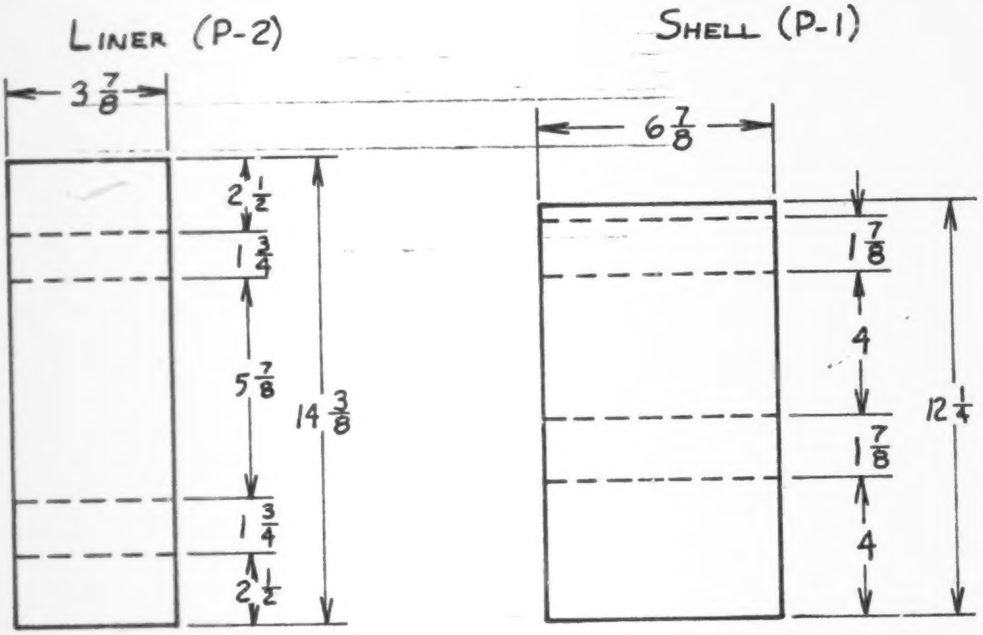




Serial No.	Sheet 11 Of 12
Model No.	Part:
Model Name: Pen Set	Part Name: Processes After Assembly

PRODUCTION ORDER

	Operation	Machine	Worker	# Fin.	# Rej.	# Com
1	See Corn Skewer Holder Details for Scoring Fixture					
2	Details and Assembly Techniques.					
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						



Serial No.	Sheet 12 Of 12
Model No.	Part: P-1 and P-2
Model Name: Pen Set	Part Name: Package Shell & Liner

I - VII - Ti (1 period)

DIRECTIONS TO THE INSTRUCTOR FOR USING THE UNIT VII TEST

I. Do not review this test until you are ready to use it. This will prevent you from accidentally giving any of the answers to your students. If this happens, you will be unable to determine if your instruction has developed the desired understandings.

II. There are 71 questions in this test for evaluating your students' knowledges. You may want to supplement the test with questions of your own. An answer sheet is also provided for your convenience.

III. Part II of the test asks for student opinions related to the activities involved in Unit VII and to his interest in industry. You may want to review the responses to these before you forward the answer sheets to Orville Nelson at the Project.

IV. After you have recorded the test data, send the completed answer sheets to the Project.

V. Directions for administering.

- A. Reproduce the test and answer sheet.
- B. Distribute the answer sheet.
  - 1. Have students fill in the information requested on the answer sheet.
  - 2. Show them how to use the answer sheet.
- C. Distribute the test.
  - 1. Review the directions on the test with your students.
  - 2. Explain that there are two parts to the test.
  - 3. Answer any questions they might have.
- D. Supervise the testing.
  - 1. See that your students are marking their answers correctly.
  - 2. Be sure they understand how to respond to the items in Part II.
- E. Collect the tests and answer sheets.
- F. If your students did not have time to complete Part II, have them finish it during the next period they come to class. Do not have them go back to Part I.
- G. Score answer sheets.
- H. Review results with your students.
- I. Send the completed answer sheets to Orville Nelson or give them to Harry Olstad when he visits your school.

3

LEVEL I AMERICAN INDUSTRY TEST: UNIT VII

Directions: Mark your answers on the answer sheet. Fill out the information requested on the answer sheet. There are two parts to this test. Complete both parts. There is only one correct response to each question. Do not mark on your test.

PART I: True-False, Multiple Choice, and Essay Items.

1-12 True and False. If a statement is true, darken the correct space under T on your answer sheet. If a statement is false, darken the space under F on your answer sheet.

1. Marketing activities are started after production of the product has been completed.
2. The people doing the marketing of a product are concerned with the effects of the quality control procedures used.
3. A car and a haircut are examples of products.
4. Final production of a product will start during the design phase.
5. Advertising is started before the market survey is done.
6. The number of products to be produced is determined by a market survey.
7. Profits are equal to income minus expenses.
8. Advertising cannot be designed and produced until the products have been produced.
9. As productivity of a worker decreases, production efficiency increases.
10. Marketing and production need to coordinate their efforts.
11. An enterprise produces as many products as the capacity of its production system will allow.
12. Interest on a loan is an expense.

I - VII - T2

13-59 Cluster True and False. Each of the following items will refer to a specific problem or question. Answer each item "true" or "false" as it relates to the problem it is associated with.

24

13-20 Marketing: Which of the following activities are usually involved in marketing? Mark those that are "true." Mark those that are not "false." Place your answers on your answer sheet.

13. Selling products for an enterprise.

14. Purchasing materials for an enterprise.

15. Designing advertising for a product.

16. Telling people what a product will do.

17. Painting the product.

18. Placing products in boxes for shipping to a retail store.

19. Asking people if they would be interested in buying a new product.

20. Designing the product.

21-30 Production: Which of the following activities are usually involved in production? Mark those that are "true." Mark those that are not "false."

21. Inspecting products.

22. Arranging machines to facilitate processing materials.

23. Determine company objectives.

24. Complete a receiving report when raw materials are delivered.

25. Designing the product.

26. Finishing the product.

27. Obtaining money to purchase equipment.

28. Assembling the product.

29. Hiring workers.

30. Observing to see if production procedures are being followed.

31-40 If we found that products were not being produced on schedule, what might be some of the causes?

31. Market research was poorly done.

15 32. Materials were not obtained on time.

33. The order in which processes are done is inefficient.

34. Profits are too high.

35. The workers have been trained too much.

36. Machines have not worked properly.

37. Advertising has not had time to be effective.

38. Production orders are not being followed.

39. Maintenance was poorly done.

40. Supervision was not adequate.

41-49 After the year's sales of a product have been totaled and expenses for producing and selling it have been subtracted, the president was informed that profits had increased from last year. Which of the following could be reasons for this happening?

41. Cost of raw materials has increased.

42. Sales have increased.

43. Unit costs have decreased and sales have remained the same.

44. Productivity has decreased.

45. Sales have increased and unit costs have decreased.

46. Cost of equipment has increased.

47. Taxes have increased.

48. Fewer products fail to meet standards during inspection.

49. Advertising has been more effective.

50. Workers in the company have not worked as hard.

51-59 An enterprise finds that the cost of producing a product is larger than the income it receives from selling it. Also, there were a number of products which were not sold. What might the company do?

51. Conduct a market survey.

52. Retrain its workers.

53. Quit making the product.

54. Hire more production workers.

55. Construct jigs and fixtures.

56. Produce more products.

57. Improve its quality control.

58. Hold a training program for its salesmen.

59. Continue producing and selling the product as before.

60-70 Multiple Choice. Select the correct answer for each question and darken the space under the letter that identifies your answer on the answer sheet.

60. What is the first thing to consider when you design a product?

A. Cost of materials
B. Need the product will satisfy
C. Marketing methods which can be used
D. Production systems available

61. Which of the following is not a reason for using jigs and fixtures?

A. Make processes more safe
B. Increase productivity of the workers
C. Improve the quality of the products
D. Improve communications between workers

62. Which of the following would be least likely to improve the efficiency of production?

A. Better communication
B. More research on production
C. Improved relationships
D. Reduced procurement costs

63. You conducted a market survey in grades 7, 8, and 9 in your school system. You found that one-half of the students contacted would purchase the product. On the basis of this and the information in Table 1 below, how many products can you sell? The responses are given below the table.

?7

TABLE 1:

Grade	Total Number of Students in Grade
7	100
8	125
9	125
10	130
12	115
12	115

Total number of teachers is 33.

A. 175
B. 350
C. 710
D. 743

64. Which of the following is the most important concern in advertising?

A. That the advertising has an appealing look
B. That the advertising is small enough to be mailed
C. That the advertising communicates with potential customers
D. That the advertising be inexpensive

65. Why does an enterprise study the potential market for a product and the problems connected with producing the product before it actually decides to go ahead with production?

A. Reduce the risks involved in manufacturing the product
B. Determine the need the product satisfies
C. Advertise the availability of the product
D. Determine what research facilities are needed

66. Parts being processed have tags which identify the work station to which they are to be moved. What concepts are involved in this example?

A. Research, communication, production
B. Production
C. Transportation, communication
D. Production, transportation, communication

67-70 Items 67-70 refer to the financial statements below. The questions follow the statements. Read the questions before you review the financial statements. The questions are on the next page.

KCR Corporation
Balance Sheet
December 31, 1968

ASSETS

Current Assets			
Cash on hand	$ 50.00		
Accounts receivable	5.00		
Inventory	45.00		
Total current assets		$100.00	
Property			
Tools, machines and equipment	$600.00		
Tooling	300.00		
Total property		$900.00	
Total Assets			$1000.00

LIABILITIES AND EQUITY CAPITAL

Current Liabilities			
Notes payable	$400.00		
Accounts payable	200.00		
Total current liabilities		$600.00	
Equity Capital			
Common stock ($1 par value per share)	$100.00		
Profit (Retained income)	400.00		
Total equity capital		$500.00	
Total Liabilities and Equity Capital			$1100.00

KCR Corporation
Operating Statement
January 1, 1968 to December 31, 1968

SALES		$4000.00	
COST OF PRODUCTS SOLD		$3000.00	
Gross profits on sales		$1000.00	
EXPENSES			
Miscellaneous	$300.00		
Taxes	300.00		
Total expenses		$ 600.00	
NET PROFIT			$400.00

)9

67. Are these financial statements done correctly?

A. Yes, they are correct
B. No, the balance sheet has an error
C. Yes, the business has shown a profit for the year
D. No, the operating expenses are too large

68. What are the earnings per share?

A. $ 4.00
B. $ 5.00
C. $10.00
D. $40.00

69. What is the percent of profit on sales?

A. 100%
B. 25%
C. 10%
D. 1%

70. If a problem came up and the KCR Company needed money in a hurry, do these financial statements show that they could obtain the needed money quickly?

A. Yes, the company is very liquid
B. No, the company is not liquid
C. Yes, the company has stock
D. No, gross profits are too large

71 Essay. Write your answer on the back of your answer sheet.

71. How could the student enterprise be improved if it were to be run again? Give as many reasons as you can think of. Be sure to explain your comments.

PART II: UNIT VII TEST

I. Answer the following section. Your responses will have no influence on your grade.

II. Directions: Read the sentences below and mark one of the following responses. If you strongly agree with a sentence, darken the space under SA. If you agree with a sentence, darken the space under A. If you cannot decide whether you agree or disagree, darken the space under U. If you disagree with a sentence, darken the space under D. If you strongly disagree with a sentence, darken the space under SD. There are no "right" or "wrong" responses to these statements. Answer according to your feelings.

Strongly Disagree = SD
Disagree = D
Undecided = U
Agree = A
Strongly Agree = SA

Place your answers in Part II of the answer sheet.

1. I would like to visit a business to see how it operates. SD D U A SA
2. I like to look at products produced by industry. SD D U A SA
3. All jobs in a business contribute to its profits. SD D U A SA
4. Industry has interesting jobs to offer. SD D U A SA
5. I look at advertising to see what sales appeals are used. SD D U A SA
6. I find it interesting to look at the designs used in the products sold in local stores. SD D U A SA
7. Industry cannot use creative people. SD D U A SA
8. Some day I might start a business of my own. SD D U A SA
9. Industry provides products I need. SD D U A SA
10. Industry does not need people with skills. SD D U A SA
11. Getting along with other people is important in industry. SD D U A SA
12. Selling products is an important part of industry. SD D U A SA

13. I will probably work in industry. SD D U A SA

14. Industry does an efficient job of producing products. SD D U A SA

15. When I am in a store and have time, I look at the construction of the products displayed. SD D U A SA

16. People have to be able to follow orders in industry. SD D U A SA

17. I like to compare products before buying one. SD D U A SA

18. Industry needs people who have knowledge. SD D U A SA

19. The more skilled a worker is the more pay he receives. SD D U A SA

20. I like to look at the way materials are used in various products sold in the local stores. SD D U A SA

21. Industry has little influence on me. SD D U A SA

22. I want to find out more about industry. SD D U A SA

23. Industry continuously develops jobs that require new-skills. SD D U A SA

24. I have some ideas for products that could be sold. SD D U A SA

25. Industry charges too much for its products. SD D U A SA

26. I had a chance in this class to develop some of my ideas for products. SD D U A SA

27. All jobs in an enterprise are important. SD D U A SA

28. Industry offers a variety of job opportunities. SD D U A SA

29. I have read several newspaper articles on the strikes held this year. SD D U A SA

30. Industry is not an important part of our society. SD D U A SA

31. I have greater appreciation for industry after studying it in this class. SD D U A SA

32. A successful business depends on a variety of jobs being done well. SD D U A SA

33. Industry could survive without profits. SD D U A SA

2

34. I sometimes look at products in local stores to see how they are made. SD D U A SA

35. This class has changed my thinking about the work I will do after my schooling has been completed. SD D U A SA

36. Products produced by industry are usually of low quality. SD D U A SA

37. Producing the product is the most important part of a successful business. SD D U A SA

38. There are many job opportunities in industry that I did not know about before taking this class. SD D U A SA

39. This class has started me thinking about the work I will do after my schooling is done. SD D U A SA

40. Industry provides an opportunity for people to develop their abilities. SD D U A SA

I - VII - T11

UNIT VII TEST
ANSWER SHEET

Name______________________ School____________________

Class Period_______ Date___________ Teacher_______________

3

Directions: Mark your answer by darkening the circle below the letter which identifies your answer.

	A	B	C	D
Example: A is your response.	●	○	○	○

Part I

1-59 True-False

	T	F
1.	○	○
2.	○	○
3.	○	○
4.	○	○
	T	F
5.	○	○
6.	○	○
7.	○	○
8.	○	○
	T	F
9.	○	○
10.	○	○
11.	○	○
12.	○	○
	T	F
13.	○	○
14.	○	○
15.	○	○
16.	○	○
	T	F
17.	○	○
18.	○	○
19.	○	○
20.	○	○

	T	F
21.	○	○
22.	○	○
23.	○	○
24.	○	○
	T	F
25.	○	○
26.	○	○
27.	○	○
28.	○	○
	T	F
29.	○	○
30.	○	○
31.	○	○
32.	○	○
	T	F
33.	○	○
34.	○	○
35.	○	○
36.	○	○
	T	F
37.	○	○
38.	○	○
39.	○	○
40.	○	○

	T	F
41.	○	○
42.	○	○
43.	○	○
44.	○	○
	T	F
45.	○	○
46.	○	○
47.	○	○
48.	○	○
	T	F
49.	○	○
50.	○	○
51.	○	○
52.	○	○
	T	F
53.	○	○
54.	○	○
55.	○	○
56.	○	○
	T	F
57.	○	○
58.	○	○
59.	○	○

60-70 Multiple Choice

	A	B	C	D
60.	○	○	○	○
61.	○	○	○	○
62.	○	○	○	○
63.	○	○	○	○
	A	B	C	D
64.	○	○	○	○
65.	○	○	○	○
66.	○	○	○	○
67.	○	○	○	○
	A	B	C	D
68.	○	○	○	○
69.	○	○	○	○
70.	○	○	○	○

71. Essay--Write your answer on the back of this answer sheet.

Part II

	SD	D	U	A	SA
1.	○	○	○	○	○
2.	○	○	○	○	○
3.	○	○	○	○	○
4.	○	○	○	○	○
	SD	D	U	A	SA
5.	○	○	○	○	○
6.	○	○	○	○	○
7.	○	○	○	○	○
8.	○	○	○	○	○
	SD	D	U	A	SA
9.	○	○	○	○	○
10.	○	○	○	○	○
11.	○	○	○	○	○
12.	○	○	○	○	○
	SD	D	U	A	SA
13.	○	○	○	○	○
14.	○	○	○	○	○
15.	○	○	○	○	○
16.	○	○	○	○	○
	SD	D	U	A	SA
17.	○	○	○	○	○
18.	○	○	○	○	○
19.	○	○	○	○	○
20.	○	○	○	○	○
	SD	D	U	A	SA
21.	○	○	○	○	○
22.	○	○	○	○	○
23.	○	○	○	○	○
24.	○	○	○	○	○
	SD	D	U	A	SA
25.	○	○	○	○	○
26.	○	○	○	○	○
27.	○	○	○	○	○
28.	○	○	○	○	○
	SD	D	U	A	SA
29.	○	○	○	○	○
30.	○	○	○	○	○
31.	○	○	○	○	○
32.	○	○	○	○	○
	SD	D	U	A	SA
33.	○	○	○	○	○
34.	○	○	○	○	○
35.	○	○	○	○	○
36.	○	○	○	○	○
	SD	D	U	A	SA
37.	○	○	○	○	○
38.	○	○	○	○	○
39.	○	○	○	○	○

I - VII - T12

UNIT VII TEST: KEY

Name________________________ School______________________

Class Period________ Date______________ Teacher________________

Directions: Mark your answer by darkening the circle below the letter which identifies your answer.

	A	B	C	D
Example: A is your response.	●	○	○	○

Part I

1-59 True-False

	T	F
1.	○	●
2.	●	○
3.	●	○
4.	○	●
	T	F
5.	○	●
6.	●	○
7.	●	○
8.	○	●
	T	F
9.	○	●
10.	●	○
11.	○	●
12.	●	○
	T	F
13.	●	○
14.	○	●
15.	●	○
16.	●	○
	T	F
17.	○	●
18.	○	●
19.	●	○
20.	○	●

	T	F
21.	●	○
22.	●	○
23.	○	●
24.	○	●
	T	F
25.	○	●
26.	●	○
27.	○	●
28.	●	○
	T	F
29.	○	●
30.	●	○
31.	○	●
32.	●	○
	T	F
33.	●	○
34.	○	●
35.	○	●
36.	●	○
	T	F
37.	○	●
38.	●	○
39.	●	○
40.	●	○

	T	F
41.	○	●
42.	●	○
43.	●	○
44.	○	●
	T	F
45.	●	○
46.	○	●
47.	○	●
48.	●	○
	T	F
49.	●	○
50.	○	●
51.	○	●
52.	●	○
	T	F
53.	●	○
54.	○	●
55.	●	○
56.	○	●
	T	F
57.	●	○
58.	●	○
59.	○	●

60-70 Multiple Choice

	A	B	C	D
60.	○	●	○	○
61.	○	○	○	●
62.	○	○	○	●
63.	●	○	○	○
	A	B	C	D
64.	○	○	●	○
65.	●	○	○	○
66.	○	○	○	●
67.	○	●	○	○
	A	B	C	D
68.	●	○	○	○
69.	○	○	●	○
70.	○	●	○	○

71. Essay--Write your answer on the back of this answer sheet.

Part II

	SD	D	U	A	SA
1.	○	○	○	○	○
2.	○	○	○	○	○
3.	○	○	○	○	○
4.	○	○	○	○	○
	SD	D	U	A	SA
5.	○	○	○	○	○
6.	○	○	○	○	○
7.	○	○	○	○	○
8.	○	○	○	○	○
	SD	D	U	A	SA
9.	○	○	○	○	○
10.	○	○	○	○	○
11.	○	○	○	○	○
12.	○	○	○	○	○
	SD	D	U	A	SA
13.	○	○	○	○	○
14.	○	○	○	○	○
15.	○	○	○	○	○
16.	○	○	○	○	○
	SD	D	U	A	SA
17.	○	○	○	○	○
18.	○	○	○	○	○
19.	○	○	○	○	○
20.	○	○	○	○	○
	SD	D	U	A	SA
21.	○	○	○	○	○
22.	○	○	○	○	○
23.	○	○	○	○	○
24.	○	○	○	○	○
	SD	D	U	A	SA
25.	○	○	○	○	○
26.	○	○	○	○	○
27.	○	○	○	○	○
28.	○	○	○	○	○
	SD	D	U	A	SA
29.	○	○	○	○	○
30.	○	○	○	○	○
31.	○	○	○	○	○
32.	○	○	○	○	○
	SD	D	U	A	SA
33.	○	○	○	○	○
34.	○	○	○	○	○
35.	○	○	○	○	○
36.	○	○	○	○	○
	SD	D	U	A	SA
37.	○	○	○	○	○
38.	○	○	○	○	○
39.	○	○	○	○	○

LEVEL II
UNIT FEEDBACK

Curriculum Feedback Information
American Industry Rev. 2/20/68

Now that you have completed this unit, please complete this form and mail it to Richard Gebhart, American Industry Project.

Check the appropriate statements and comment as requested. Note: In some cases more than one statement may be checked.

If you need more room for comments, attach additional pages.

Instructor____________________________ Date________________

Unit Number________ Date Started_________ Date Completed_________

1. The approximate time spent in laboratory was______%.

2. Generally, this unit was found to be (a) ☐ excellent, (b) ☐ good, (c) ☐ fair, (d) ☐ poor. If (c) or (d) explain__________________

3. The general unit objectives were (a) ☐ clearly defined, (b) ☐ adequate, (c) ☐ not clear, (d) ☐ impossible to meet, (e) ☐ too broad, (f) ☐ too restrictive. If (c), (d), or (e) explain________________

4. Generally, the activities were found (a) ☐ adequate, (b) ☐ not suited to the lesson(s), (c) ☐ not enough of them. If (b) or (c) explain_____

5. The student booklet (a) ☐ provided enough background reading for the students, (b) ☐ should have contained more information, (c) ☐ did not fit together with the lessons. If (b) or (c) explain______________

6. The instructional media for this unit was generally (a) ☐ effective, (b) ☐ ineffective.

(Be sure to fill out the items on the reverse side.)

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7. Did you make any changes in the lesson sequence or contents in this unit?

(a) ☐ yes, (b) ☐ no. If you checked (a), please describe the changes.

____

____

8. Give a general summary of your feelings about this unit. Include the strong and weak points you found.

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